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A Lecture
ON
TRACHEAL INJECTION: ITS SIMPLIFICATION AND ITS USE IN PULMONARY TUBERCULOSIS.

Delivered in English at the Hôtel Dieu in Paris on May 12th, 1905,

BY DR. MENDEL,
ANCIEN INTERNE DES HÔPITAUX DE PARIS.

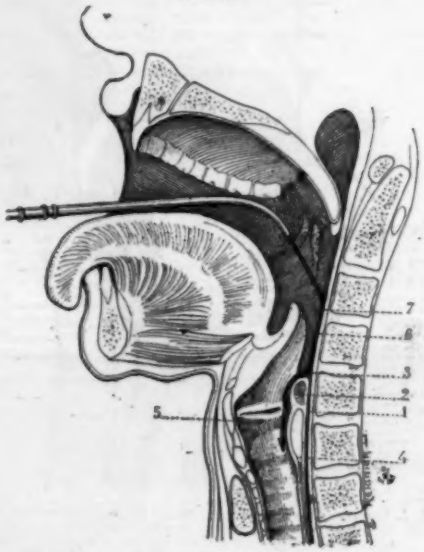
GENTLEMEN,—I wish to bring to your notice in a few words a therapeutic method which may be conveniently designated tracheal injection. It is not entirely new, as it was first practised in 1887, but it is, nevertheless, comparatively new, for it is even now nearly unknown to medical men in general. The injection of medicated liquids into the air passages was originated by Dr. Albert Jobson Beehag of Edinburgh and was also employed nearly at the same time by a German, Dr. Rosenberg of Berlin. The two were laryngologists and they performed this little operation by introducing the tube of the syringe into the larynx under the guidance of the laryngoscopic mirror. In this way they injected some drops of olive oil containing menthol; their aim was to diminish the pain caused by tuberculous laryngitis, but they were soon able to see that this injection, repeated every day, had also good results on the cough, the expectoration, and the respiration of the consumptive patient, and they advised the use of this method in pulmonary tuberculosis without laryngitis. It was accordingly employed by a few practitioners in different countries who all declared that they were very satisfied with it. The method, however, attracted little attention and remained almost entirely unknown except to the laryngologists, some of whom employed it in rare cases.

There were two principal reasons for this want of success. In the first place the injections were not easy to give, being in reality an endolaryngeal operation which could only be performed by a specially trained laryngologist. Moreover, as laryngologists do not usually treat pulmonary tuberculosis this therapeutic method was hardly ever used in the cases where it would have been most beneficial. The second cause of the non-success of this method was what might be called the prejudice against manipulative interference with the trachea. In fact, physiologists and medical men believed that the laryngo-tracheal tube was extremely sensitive and intolerant of foreign bodies and that injecting anything into it must necessarily produce coughing and suffocation. Here it is interesting to remark that laryngological practice confirmed this error, as the laryngologists injected into the air passages irritating liquids, such as menthol and creasote, which almost always made the patient cough violently, and they attributed to tracheal sensibility an effect which was really caused by the irritant properties of the medicines employed. I will give you two instances of this error of the laryngologists. A very distinguished laryngologist said to me some time ago, "At my hospital when I make one of my pupils give a tracheal injection I need not look at the operation. If I hear the patient coughing I think that the injection has been correctly performed; if not, the liquid has been wrongly injected and finally swallowed by the patient." This laryngologist was kind enough to be present at one of my demonstrations and was able to see that if the patient coughs after an injection the reason is that the liquid injected is irritating, and that after a non-irritating injection (pure olive oil or weak medicated solutions) the patient never coughs. Another well-known laryngologist told me that he never performed any tracheal injections, as he feared making the patient cough and choke.

FIG. 1.

Tracheal injection performed by the laryngological method.

FIG. 2.

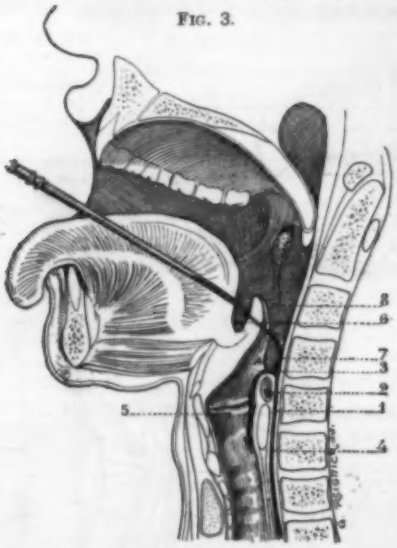


1. Laryngeal part of the pharynx. 2. Posterior wall of the larynx. 3. True origin of the œsophageal tube. 4. Anatomical origin of the œsophagus. 5. Cavity of the larynx. 6. Posterior wall of the pharynx. 7. Lateral wall of the pharynx.

Such were the reasons which have hitherto caused tracheal injection to remain unknown to, and unemployed by, medical men, but the case is quite altered now, for after many researches and experiments I have proved (1) that the manipulations required for tracheal injection can be sufficiently simplified to be performed by any medical practitioner without any special laryngological training; and (2) that the introduction of non-irritating liquids into the air passages never causes any reflex, any coughing, or any suffocation. I have been able to simplify the technique of tracheal injection in accordance with the following observation. If the tongue of the patient is protruded and held outside the mouth, and

if he at the same time refrains from swallowing, the pharynx forms a funnel in which the only inferior outlet is the glottis, for the orifice of the œsophageal tube is closed except during the act of swallowing, so that a small quantity of liquid projected against the wall of the pharynx runs down into

FIG. 3.



1. Laryngeal part of the pharynx. 2. Posterior wall of the larynx. 3. True origin of the œsophageal tube. 4. Anatomical origin of the œsophagus. 5. Cavity of the larynx. 6. Glosso-epiglottic groove. 7. Posterior wall of the pharynx. 8. Lateral wall of the pharynx.

the air passages. The experiment is represented in Fig. 2. The experiment will also succeed if the liquid is projected against the lateral wall of the pharynx, as represented in Fig. 3, in which the injection after having been forcibly projected against the inferior part of the lateral wall of the pharynx is shown passing round to reach the posterior wall, whence it runs down into the larynx.

Guided by these experiments I have devised two modes of injecting. The first method, called the medial method, is a repetition of the first experiment; it is the less used and the less convenient of the two. I therefore prefer describing the second or lateral method, which is the most convenient and which is always employed unless there be special indications to warrant the use of the other.[1]

For the lateral method the only necessary instrument is the syringe which I now show. It is, in fact, Dr. Beehag's syringe with some modifications whereby the tube is shortened and is not screwed on the syringe but is simply adapted and fixed with a sort of ring. The patient must sit opposite a window so that his throat may be sufficiently in the light. The operator usually sits opposite the patient, but if the latter is in bed he can sit up and the operator must stand opposite him. If the injection is given at night a lamp must be used and, if possible, a frontal mirror. On a table near the operator there must be some boiling water to clean the tubes between the injections, some pieces of linen, a glass of water, and a basin, so that the patient may be able to rinse his throat after the injection and to spit out the fluid. The operator with his left hand draws the tip of the patient's tongue outside the mouth, while with his right hand he holds the syringe properly filled (i.e., containing no air) and introduces the tube gently, maintaining the curve in a horizontal position and passing over the lingual surface without touching it. The outside of the curve is then firmly applied to the base of the left faucial column, which is used as a support. The operator exerts a strong outward pressure on this column; by this means he keeps his hand steady when the liquid is projected forcibly, as it must be, otherwise his hand might tremble and the tube might irritate the patient's throat. In this position the tube is fixed like a gun on its carriage, its nozzle rests horizontally in the glosso-epiglottic groove, and the base of the tongue hides it. Its orifice is directed towards the lateral wall of the pharynx. Fig. 4 shows the syringe in this position. The patient remains passive and breathes without effort. The contents of the syringe are discharged with force; in fact, the liquid must be projected against the lateral wall of the pharynx with sufficient force to turn round this wall and thus reach the posterior wall, whence it falls into the larynx.

After the contents of the syringe are ejected the operator must keep the patient's tongue protruded for a few seconds so as to allow the liquid to run down, for the pharynx has the shape of a funnel only when the tongue is protruded and if the tongue resumes its natural position too soon the liquid, or a part of it, instead of running into the larynx is brought back into the mouth and expectorated. Immediately after the injection the patient feels a vague and rather agreeable sensation in his chest. He then spits out the small quantity of liquid that may remain in his pharynx and rinses his throat and mouth. You will now understand how simple and easy tracheal injection is.

I will in the next place consider what medicines are to be injected. I have said that the early operators used menthol and creasote dissolved in olive oil, but these medicines are irritating and difficult for the patient to take. Instead of these I use non-irritating liquids and I now recommend eucalyptol and gomenol dissolved in olive oil—from 5 to 10 per cent. of the former and from 5 to 50 per cent. of the latter. Many other medicines might be used, as any substance which is not irritating may be injected into the trachea. In the first sitting, however, it is better to begin by injecting a very weak solution so as to ascertain the sensibility of the patient. The tolerance of the trachea is, as a rule, very great but in some exceptional cases the patient cannot take a solution containing more than 1 or 2 per cent. of the active component, otherwise he feels an irritation and may cough, but his coughing is always soothed by the injection of pure olive oil. The treatment by tracheal injection, or more simply, the tracheal treatment, consists of the injection of three consecutive deliveries from a syringe the capacity of

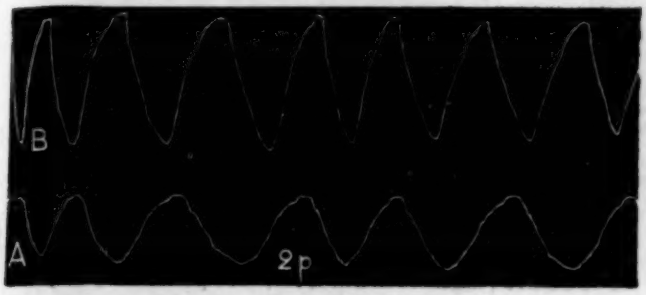
FIG. 4.

Tracheal injection; lateral method.

[1] See Traitement de la Tuberculose par la Médication Intra-trachéale. Par Dr. Mendel. Paris: De Rudeval. 1904.

which is three cubic centimetres, so that nine cubic centimetres of medicated liquid are injected every day. This treatment is continued for one month, after which it is discontinued but may be resumed as frequently as the condition of the patient requires it.

FIG. 5.

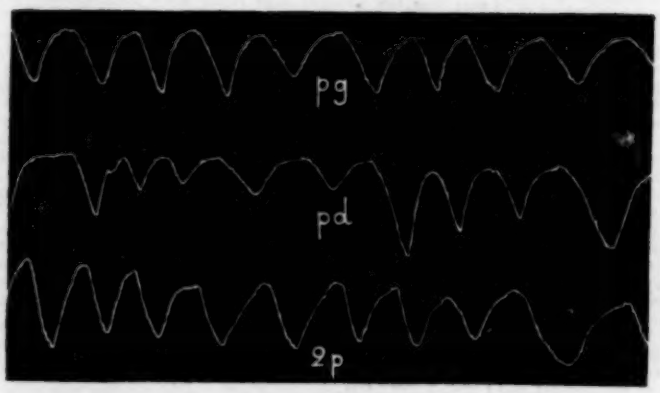


Pneumographic diagram.

Before showing you the method of giving an injection I will consider the clinical results of this treatment, results drawn from the observation of more than 200 patients within seven years. These results are of two classes, general and local.

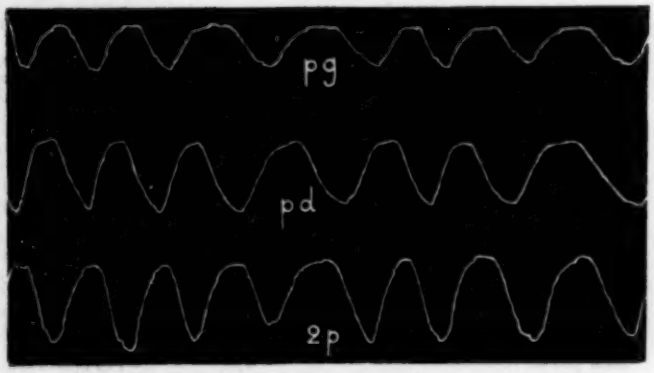
General results.—In the first place, gastric medication being avoided, the patient is not obliged to swallow drugs, which often cause dyspepsia by their action on the gastric mucous membrane. In the next place there is an immediate improvement in the respiration. This result may be considered as characteristic of tracheal treatment. As soon as the essential oil has penetrated into the bronchial tubes it evaporates and the vapour causes a reflex expansion of the lungs or of the parts of the lungs which are able to expand. Fig. 5 is a pneumographic diagram which gives in A a tracing of the respirations of a consumptive patient in the first stage of the disease, the tracing being taken before the first injection. The patient, still wearing the pneumographic belt, then received the injection and his respirations gave the tracing represented in B. It is obvious that the respirations shown in B are at least twice as deep as those shown in A. The patient naturally felt this difference before the pneumograph recorded it. This expansion is always greater in the hour or hours following the injections, but by degrees it becomes permanent, and in favourable cases within a few days the respiration is quite altered. Fig. 6 shows tracings of the respirations of a patient in the first stage of pulmonary tuberculosis with dulness and diminution of the respirations of the right apex. These records were made before the commencement of the tracheal treatment. The tracing *2p* represents the combined respirations of both lungs; *pd* represents the respirations of the right lung, and *pg* those of the left lung. Fig. 7 shows tracings of the respirations of the same patient after eight injections. It will be seen (1) that the respirations, especially those of the right lung—the diseased one—are now increased; (2) that the general expansion is greater; and (3) that the number of respirations per minute is less (17 instead of 22), which proves that every respiration is greater than before the treatment. This action on the respiration is of the utmost importance, for consumptives may be considered as taking in less air than normal individuals and the result of improving their respirations is to give them appetite, increase of weight, and, finally, more vitality.

FIG. 6.



Pneumographic diagram.

FIG. 7.



Pneumographic diagram.

Local results.—I may particularise the three following local results of the tracheal injections—namely, (1) daily "dressing" of the larynx; (2) diminution or cessation of the cough and expectoration; and (3) improvement of the stethoscopic signs. 1. The injection is a veritable cleansing of the larynx, where phlegm too often remains and becomes dry: this is the frequent origin of tuberculous laryngitis, and even in cases of laryngitis the injection is a good remedy. 2. In four-fifths of the observations the gravity of the cough diminishes or ceases, according to the case. At the same time, the expectoration becomes thinner and white and diminishes or even ceases altogether. As for the pyrexia it is rarely affected. In some cases, when pyrexia is caused by the filling of a cavity with phlegm, as the treatment has the effect of emptying this cavity by making the patient expectorate the temperature naturally falls. 3. In half of the cases I have been able to observe: (*a*) Expansion of parts of the lungs which did not expand before; in other words, the respiratory murmur becomes more audible in the apex where it had before been diminished. This result has

been already noted by the pneumograph. (*b*) Another stethoscopic result which I have repeatedly observed is that the tracheal treatment checks the abnormal secretion from the broncho-pulmonary surfaces, and this result has been characterised by the diminution or disappearance of the different râles—subcrepitant, cavernous, or simply dry.

After this short exposition of the tracheal method, which, you perceive, may be used not only in tuberculosis but in any chronic broncho-pulmonary disease, I next proceed to give you some clinical demonstrations of the simplicity and efficacy of the process which I employ. I first show you a patient on whom tracheotomy was performed two years ago for syphilitic laryngitis. I remove the tube from his trachea and I give him a tracheal injection through his mouth by the simplified method. You can see the liquid, which is oil coloured red, running out of the opening in his trachea. Finally, I will give the injection to ordinary patients. You will see that this operation is rapid, simple, and not at all disagreeable to them.

ON THE HOURS OF SLEEP AT PUBLIC SCHOOLS,

BASED ON AN INQUIRY INTO THE ARRANGEMENTS EXISTING IN FORTY OF THE GREAT PUBLIC SCHOOLS IN ENGLAND AND OTHERS IN THE UNITED STATES OF AMERICA.[1]

BY T. D. ACLAND, M.A., M.D. OXON., F.R.C.P. LOND.,
PHYSICIAN TO ST. THOMAS'S HOSPITAL AND CONSULTING PHYSICIAN TO THE HOSPITAL FOR DISEASES OF THE CHEST, BROMPTON.

IT may possibly be asked why one who is not a medical officer to a great public school should take up the question as to the hours of sleep which are desirable for boys at school. The explanation is a simple one. My interest was excited by a particular case and during the inquiries which ensued it seemed to me that it might be no bad thing for an outsider to introduce a discussion on this subject, especially if, like myself, he had no preconceived ideas and no traditions to influence him by casting an enticing and romantic haze over practices which belong to a bygone age but which are in many ways opposed to the more enlightened views of modern hygiene. There cannot be any question that sufficient sleep is a matter not only of importance but of vital necessity to the well-being of all young and growing children, especially at that period when the rapid unfolding of new bodily and intellectual functions makes it more than ever desirable that they should not be subjected to any influence which may retard or prevent the full development of their powers. A physiological question such as the one under consideration, which involves more than a third part of a boy's life, is surely one on which the Medical Officers of Schools' Association may be asked to express an opinion. Judging by some of the correspondence which has lately appeared in the daily press on the subject of our public schools there are still some persons who think that dirt, lack of cubic space, and insufficient food are Spartan conditions which tend to promote hardihood and intelligence, and that cleanliness, good food, ample ventilation, and common-sense regard for health encourage self-indulgence and coddling. Although much has been done to improve the condition of our great schools during the last 25 years it is within the knowledge of us all that there is still room for improvement, especially in matters relating to health. My object to-day is to discuss with you the question as to the amount of sleep which it is desirable to give to the younger boys during the first two or three years of their life at a public school, when they have not yet become acclimatised to their new conditions and when they are subjected to pressure of various kinds such as they have never before experienced, whilst at the same time they have reached a crisis in their lives which necessitates the most watchful care to enable them to attain to the maximum of intellectual and bodily efficiency.

Much is said about over-pressure in schools and all of us must know of cases in which actual breakdown has occurred. I know of many and my belief, which is shared by others who have ample opportunity for observation, is that a part, at any rate, of the harm is done by too little rest being given to the higher nerve centres owing to insufficient or broken sleep. Up to the time when this question first began to interest me I had assumed (as doubtless many have done before) that the hours of sleep in any great school were apportioned on some plan which had been carefully thought out between the medical advisers and the executive, and it came to me as something of a surprise to find that in a school in which the medical officer has for many years strenuously advocated the necessity for giving the boys up to 16 years of age ten hours' sleep a small boy of 13 years was placed in a dormitory in which the prefects' lights were not out and the dormitory was not quiet until 10.30, the boys being roused again at 6.15, giving, in fact, only seven and three-quarter hours of quiet.

It is generally held that an average of about eight hours' sleep is good for adults after they have attained their full development and during the best years of their active work. Some, of course, require less; some few require more. It is largely a matter of idiosyncrasy. There is much practical and some experimental evidence on this point. One distinguished member of our profession, a man of great physical strength, whose intellectual power was recognised by all who knew him, when under the full stress of work often required, and took, ten. Another tells me he cannot do with less than eight and a half and another nine. Eight hours' sleep seems to be a reasonable average for an adult when engaged in active work. It is admitted by all that the growing boy needs more sleep than the adult man. It cannot, therefore, be unreasonable to ask that boys who are just emerging out of childhood, when they are working and playing harder than ever before, should have fuller hours of sleep than those which not unreasonably would be granted to a hard-worked man. "Truth," as Ruskin says, "is not to be discerned by the uneducated senses." A clear perception of what is needed must depend upon previous knowledge and the exercise of trained observation. Those who have the care of growing boys ought not to be satisfied that long hours of work and strenuous play, combined with short hours of sleep, are desirable for them without careful inquiry, nor without taking counsel with those who have opportunity of looking a few years ahead and who are able to scan the horizon of the boy's future life after he shall have reached maturity.

I cannot doubt that the trained experience of the physician, who is able not only to watch the effect of school life upon the boy but also to observe its after-effects, is a safer guide in the ultimate decision of all questions relating to health than that of the layman who has not the technical knowledge and whose observation is mainly limited to the four or five years of the boy's public school life. The consequence of lack of repose to the body and central nervous system may entirely escape the notice even of a careful and experienced master. I have been told that it is not noticeable that the younger boys suffer more from illness than the older ones and that they do not show any ill-effects from lack of rest. To an untrained observer nothing may appear to be wrong, whilst all the time the boy may be working under a strain to his nervous system, which, before many years have passed, may work out its nemesis in some neurosis, such as neurasthenia, chorea, or even epilepsy. We unfortunately know only too well that the first positive evidence of nerve strain may indicate damage, the effect of which will last through life. "The mischief," an expert[2] writes to me, "is that the evil consequences ..... do not always show themselves at once, but are cumulative and come to the surface (often) after the boy has left school." I know of such cases, and there can be few here present who have not seen them; and which of us would like to apportion the blame with confidence between overwork, under-sleep, or idiosyncrasy? Surely, if there is a possibility of risk it is wiser to recognise it and not to subject the boy to any avoidable strain which is as unnecessary as it is contrary to well-known physiological laws.

How fallacious deductions made from a limited point of view or with preconceived ideas may prove to be is shown by the following statement of a lay correspondent who writes: "What you and those who agitate with you for longer hours

[1] A paper read before the Medical Officers of Schools' Association on May 11th, 1905.

[2] Sir James Crichton-Browne, M.D., F.R.S., Lord Chancellor's Visitor in Lunacy, writer of report on "Overpressure in Elementary Schools," printed by the House of Commons; Vice-President, Royal Institution, Great Britain.

of sleep are doing is simply to encourage the luxury and self-indulgence which are eating the heart out of our English boyhood and manhood and which show themselves nowhere more than in the matter of oversleeping." This is a serious statement, if it be true, and is deserving of full consideration. I shall refer to it again later, but as bearing upon the question I may mention that in four schools in which both the master and medical officers give their opinion in each case the master states that he does not think the smaller boys in that particular school need more sleep, whilst the medical officer is of opinion that they do. To ascertain the facts as completely as possible I have, through the kindness of many correspondents (to whom I here tender my sincere thanks), obtained the approximate hours of quiet in the dormitories in 40 of the great schools in England and in five of the largest and best schools in America[3] (Tables I. and II.) and I have obtained the opinions of a great number of observers in all parts of the country, especially of those who have written on the subject in standard works. I am thus enabled to lay before you a weighty mass of opinion, gathered from masters and medical officers of schools, physiologists, and physicians. From all quarters comes the same reply: growing boys need from nine to ten hours of sleep, the majority say *ten* should be given to the younger boys—e.g., from 13 to 16 years of age—if the body and central nervous system are to be maintained at their maximum efficiency (see Table IV. (A)). Here and there, but very rarely, a contrary opinion has been expressed but in no case has any defence of short—i.e., less than nine—hours of sleep been made by any medical officer of a school or physician. In the very few cases in which it has been made it has come from a layman who can hardly be fully acquainted with the medical side of the question. The fact is that the unanimity of the replies I have received has caused me some surprise. There has practically been no dissent from the opinion that the younger boys require, and frequently do not get, sufficient rest. If it were not that it seems to be unknown to some and is not acted on by others who have charge of the boys in our great public schools I should not venture to repeat the familiar message but the facts as they exist must be faced.

There are three main points to be considered: (1) the allowance of sleep which is reasonable for growing boys during the first two or three years of their life at a public school; (2) the risk which is incurred by stinting young growing boys of that amount of sleep for which nature makes an imperative demand; and (3) some of the difficulties in the way of obtaining the needful amount of sleep in many public schools.

I will ask you first to consider the question from the point of view of the physiologist. Professor J. G. McKendrick[4] writes to me: "A young growing lad should have ten hours' sleep both during summer and winter. During the time they are at school and college there can be no doubt that the mental efficiency of boys is kept up to the normal standard by plenty of sleep. I have often noticed a jaded appearance when less sleep was obtained than, say, eight or nine hours, whilst the boy will be bright and alert if he has, say, ten hours. ..... I have known men who were no longer boys who still needed nine hours' sleep if they were to do effective work." Another distinguished physiologist, Professor C. S. Sherrington,[5] writes to me at length, condemning the practice of attempting to run the young boy's life with the same allowance of sleep which he considers necessary for the full-grown adult. He points out that the child's bodily life is run more expensively than the adult's, since bulk increases as the cube and surface as the square the child has, relatively, far more body surface than the adult and has in consequence to produce more body heat to maintain its temperature. This is proved by the fact that the average child gives out about 500 cubic centimetres of CO_2 per kilo of body weight as against 300 given out by the adult. The combustion in the child is more active than when growth has ceased; and further, there is the additional drain caused by growth and the characteristic restlessness of boyhood; from all of which points, which are incontrovertible, he deduces that solely on physiological grounds the body of the child demands a diurnal balance of repose much greater than that which is required in later life—in short, that boyhood wants longer sleep than does set manhood. "During sleep the chemical processes of the body are reduced in the case of CO_2 output to one-fifth, so that the organism during sleep may be said to have its fires banked instead of being run under forced draught. But sleep is not only a respite from chemical change, it is a mechanical rest as well, which is especially of importance during the years of growth. By insufficient rest the growth can be stunted and development retarded. The heart and respiratory mechanism require for their efficient working a diastole (or rest period) equal to their working hours. Most of a boy's growth in stature is done in bed and there mental and physiological recreation goes on most efficiently; without plenty of sleep the activity of the waking day is like a house built on sand—in constant danger of breaking down and giving way." He concludes by saying: "I should put the length of rest in bed demanded 'by small boys'—e.g., boys from 13 to 15 years—at ten hours and their normal hour for retiring

TABLE I.—*Showing the Approximate Hours of Undisturbed Rest in 40 English Public Schools.*

—	Younger boys.		Older boys.		Duration of winter hours.
	Summer.	Winter.	Summer.	Winter.	
1	10½	10½	8½	9½	Same all the year for juniors.
2	10	10½	9½	9½	Two winter terms, 24 weeks.
3	9½	10½	8½	9½	Not stated.
4	9½	10	8½	8½	About 8 weeks.
5	9½	9½	8½	8½	Same all the year.
6	9½	9½	8½	8½	Not stated.
7	9½	10 h. 10 m.	8½	9 h. 20 m.	About 14 weeks.
8	9½	9½	9½	9½	Not stated.
9	9½	9½	8½	8½	Same all the year.
10	9½	9½	8½	?	About 9 weeks.
11	9½	9½	9½	9½	Same all the year.
12	9	10	8	9	24 weeks.
13	9	10	8½	9½	About 8 weeks.
14	9	10	8½	9½	"
15	9	9½	9	9½	24 weeks.
16	9	9½	8½	9	About 16 weeks.
17	9	9	8½	8½	Same all the year.
18	8½	8½	8	8	"
19	8 h. 40 m.	9½	8 h. 40 m.	9½	24 weeks.
20	8 h. 40 m.	8 h. 55 m.	8 h. 40 m.	8 h. 55 m.	About 8 weeks.
21	8½	9½	8½	9½	24 weeks.
22	8½	9½	8½	9½	"
23	8½	9½	8½	9½	"
24	8½	9½	8	9	About 5 weeks.
25	8 h. 25 m.	9½	8 h. 25 m.	9½	About 10 weeks.
26	8½	9½	8½	9½	Not stated.
27	8½	9	8	8½	24 weeks.
28	8½	9	7½	8	About 8 weeks.
29	8½	9	8½	9	About 12 weeks.
30	8½	9	8½	9	About 6 weeks.
31	8½	8½	8½	8½	Not stated.
32	8½	8½	8	8	Same all the year.
33	8½	8½	8½	8½	"
34	8½	9½	8½	9½	A few weeks only.
35	8½	9	8½	9	About 18 weeks.
36	8½	9	—	—	24 weeks.
37	8½	8½	8½	8½	Not stated.
38	8½	8½	8½	8½	Same all the year.
39	8	9	8	9	A few weeks only.
40	7½	8½	7½	8½	For some weeks.

[3] A form of inquiry was sent to all the principal public schools in England and in a large number of instances, where the information was not sufficiently exact, subsequent inquiries were made. I am under a deep debt of obligation to my many correspondents, some of whom I should like to mention by name, were it not for obvious reasons undesirable.

[4] Professor McKendrick, M.D., F.R.S., Professor of Physiology in the University of Glasgow, formerly Fullerian Professor of Physiology, Royal Institution of Great Britain, and writer of the article on Sleep in the "Encyclopædia Britannica."

[5] Professor Sherrington, M.D., F.R.S., Holt Professor of Physiology, University of Liverpool, chairman of the British Association Committee on School Hygiene.

at 9"; and he adds, as is universally admitted, "the wants of all children are not the same—it is a question of idiosyncrasy."

Thus speaks the physiologist in no uncertain terms. In his opinion there are not two sides to this question. I hear it objected, however, that this is all very well but it is pure theory—the speaker has no practical experience of the education of boys and their actual needs. Far from this being the case, Professor Sherrington is not only a distinguished physiologist but he is also the chairman of a committee appointed by the British Association to report on the conditions of health essential to the carrying on of the work of instruction in schools and for some years he has given special attention to the subject.

TABLE II. (A).—*Showing the Hours of Sleep given in Five of the Principal American Schools.*

—	Younger boys.	Older boys.
1	10 and 9½ according to age.	9½; sixth form 9.
2	10 winter, 9½ summer.	9½ winter, 9 summer.
3	10 to 9½ under 16 years.	9 from 16 to 18 years.
4	10½ under 15 years.	9 hrs. 20 min. over 15 years; sixth form 8 hrs. 55 min.
5	10½ to 9 according to age.	Sixth form 8½.

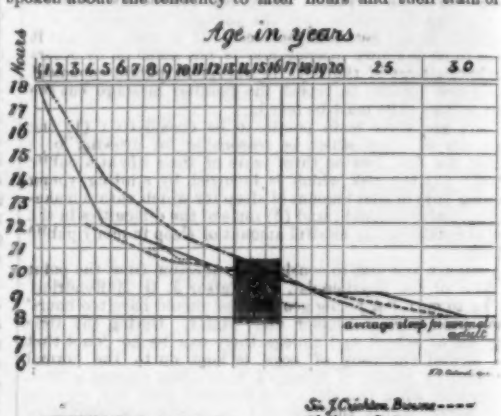
Note.—In none of the above schools is there chapel or school before breakfast at any time during the year.

TABLE II. (B).—*Showing the Hours of Sleep given in Certain Training Ships and Institutions.*

—	Hours of sleep.	Limit of age.
Training ship A	8½ to 9	Up to 16
,, ,, B	9	,, 17
Royal Naval School	9½	,, 15½
Reformatories	8½ to 9½	,, 16

If the words of the man of science cannot carry conviction let the house master in one of the most celebrated schools in England speak. He writes: "On the general principle of giving boys more sleep I am quite with you and will support any reasonable proposal when made for reform." And, further, the headmaster of one of the best schools in America says: "You will see that we give the boys a good deal more sleep than they have in public schools in England. I was myself at Cheltenham College for five years and I feel convinced that we were not allowed enough time for sleep. At this school boys up to 15 are allowed 10½ hours; over 15, if not in the sixth, nine hours 20 minutes; sixth form, eight hours 55 minutes." So that in this school more sleep is given to the sixth form boys than in many English schools is allowed to children of 13 and 14. The headmaster of another school (this time an Englishman), who was for 14 years assistant master at one of the great schools, where the hours of quiet in the dormitories are given as eight and a quarter and eight and three-quarters in summer and winter respectively, writes to me: "As to sleep, the fact that I aim at nine [hours] for myself will show you my belief on the subject. In the winter we have no work before breakfast. The bigger boys get nine and a half hours' sleep in the winter, for silence is enacted at 10 P.M. . . . The little boys are in bed at 9, are called at 7.30, and are down at 8, so they get 10½."

To turn to the medical aspect of the case Dr. Clement Dukes, whose writings on school hygiene are widely consulted by all educational authorities, in the address which he gave before the Congress on School Hygiene in February last (1905), said: "If we follow nature, during the years of formation and development adequate sleep must not only be permitted but enforced. When puberty arrives and new functions are being established more sleep still is imperative, as is also the case in cold weather. The long hours of work demanded of the younger children, with the short time allowed for sleep could not be continued if the scheme were in force all the year round, as there would be no children left at the school. The vacations save a complete breakdown." He concludes by saying: "It is both unwise and unnatural to arrange suitable hours of work and sleep for the seniors in schools, to which juniors have to conform with serious injury to their present and their future. According to Dr. Clouston there is a decreasing degree of staying power manifest during the last 30 years (i.e., since the Education Act of 1870) on the part of the brain, to the extent of about 40 per cent. It is a question for us all to consider what share, if any, schools have in this terrible fact with the excessive hours of work in the early years of childhood, and totally inadequate amount of sleep during the same period of life."[6] Dr. T. B. Hyslop, senior physician to Bethlem Royal Hospital and King Edward's Schools (London and Witley), is not less emphatic. "My experience in Bethlem," he says, "tells me that the question of sleep is worthy of our most serious attention. ..... 90 per cent. of the cases admitted to Bethlem since the year 1820 have suffered from insomnia. That one of the essentials of life (as sleep is) should be so prone to be disordered is significant that there is a fault in our economy and this fault seems to arise from the fact that few, if any, of those who have charge of our boys and girls pay any attention to the cultivation of the *habit* of sleep.[7] The stress and strain of modern life necessitates increased brain activity, and in order that the mental energies may last it is obvious that brain rest should be obtained. Insomnia, brain fatigue, neurasthenia, are products of the last few decades and nearly all the cases I have to deal with have histories of overwork and inability to obtain a sufficient amount of rest. Oh! if only the people could be made to understand that the cultivation of the habit of sleep means an investment or insurance against the mental and nervous maladies of the present day. ..... Each decade sees us becoming more brainy, but the alertness of our youths and adolescents is shorter lived and premature degenerations are the almost inevitable outcome of a false economy in the use and abuse of brain power. On several occasions I have spoken about the tendency to later hours and their train of



This chart has been compiled from figures given by Sir J. Crichton-Browne ("Health and the Nervous System," Cassell's Book of Health, p. 236); Dr. Clement Dukes (Health at School, fourth edition, Rivingtons, 1905, p. 130); Professor A. Key* (Handbuch der Schulhygiene Burgerstein und Netolitzky, IIte. Aufl., Jena, 1902, p. 692; from an unpublished diagram by Dr. Hyslop, and from data obtained from the various public schools (cf. Tables I. and II.) In 23 out of the 40 English schools of which I have obtained particulars, the hours of sleep given to the younger boys fall short of the *minimum* for all or part of the year, and even the hours given to the older boys are in many instances insufficient.

* Professor Key allows one hour in the dormitory for rising and going to bed in *addition* to the hours given in his table.

evils, but the people will awaken themselves to the truth only when it is too late. ..... The increase in mental and nervous instability demands a reversal of the engines of education, and I would regard sleep as the best preservation

[6] Sleep in Relation to Education, by Dr. Clement Dukes, physician to Rugby School, author of Health at School. Fourth edition. Rivingtons, 1905.

[7] During the discussion on this paper Dr. G. H. Savage, consulting physician to Guy's Hospital, late medical superintendent to Bethlem Royal Hospital, spoke strongly to the same effect.

against the stress and strain of life and all the incidental conditions which make so many succumb in adult life. I have been some considerable time in making out a chart of the relationship of sleep to age; the reason for the various estimates are based upon deeper considerations than those of temporary expediency (see Chart). ..... I have had charge of 480 children, 11 to 15 years of age, so I have had opportunities of studying the question."

I should like here to call attention to two papers by Dr. Hyslop on "Mental Hygiene in Childhood"[8] and "The National Basis of Education."[9] In these he points out the evils of defective brain rest and he draws attention to the symptoms of what he calls mental indigestion, such as nightmares, night terrors, somnambulism, epilepsy, and even convulsions, and he speaks strongly on the culpable ignorance of those who are responsible for the education of children, inasmuch as they attribute the formidable array of neuroses with which the expert has to deal merely to constitutional defect, whereas, in fact, it is to the system of education rather than to the child that the maladies are due. Ignorance on these points, he concludes, is all the more reprehensible, because it is within the power of those responsible to obtain enlightenment from those who, having had the necessary medical training, are well qualified to advise them.

One of your members, himself a distinguished medical officer of a great public school, writes: "The arrangements which still obtain in many schools under this head (the hours of sleep) are no doubt physiologically wrong and economically unsound. It is obviously unreasonable that the child who, if his parents are at all wise, is allowed his fair allowance of sleep within proper hours, during the holidays at home, should be docked of a substantial part of his physiological income just when the call upon it is greatest, that is at school."

Next let me quote Sir James Crichton-Browne whose work on Over-pressure in Schools is so well known. He writes: "You will be doing a public service by calling attention to the matter and by insisting on the importance of the *vis dormativa* in early years." He adds that he has not the shadow of a doubt that obvious and immediate harm results from short hours of sleep and is certain that much and very serious deferred harm may result from them. He continues: "Highly strung, sensitive boys suffer at once from loss of sleep. ..... The more stolid and stable boys suffer covertly in slight retardation of brain growth and intelligence, not so obvious but real enough. Sleep is more intimately connected with brain growth than with brain function. In the years of highest cerebral activity in adult life least sleep is required, in the years of low functional activity, but rapid growth, most. ..... I have noted as one of the causes of the physical deterioration that is, I believe, going on, insufficiency and dislocation of sleep. This is a sleepless age and more and more ..... we are turning night into day. The sleep of the rising generation is being seriously interfered with, abbreviated, and broken, and the inevitable consequence must be a rich crop of 'neurotism' and a general lowering of the level of intelligence."

These are strong words coming from a trained observer who has devoted more than 30 years to the study of disorders of the nervous system and who has made a special study of the evil results of over-pressure in schools which has deservedly received wide recognition. 23 years ago he wrote: "From birth when the brain is growing rapidly and when life is almost a continuous sleep, onwards till manhood when brain growth is at an end and when only a third of existence is (or ought to be) given to sleep, the increment of growth progressively diminishes, and *pari passu* with this diminution in growth goes a reduction in the demand for sleep made by the system, so it might perhaps be said that eight hours in the 24 constitute the amount of reparative sleep needed by the full-grown brain and that all sleep beyond that amount prior to maturity is germinal sleep connected with processes of growth and development."[10]

If this is a reasonable statement of the case it follows that to give the adolescent brain a bare eight hours' sleep is to stint the growing boy not only in the time needed for the processes of development and growth but to impair the efficiency of those higher nerve centres on whose well-being the future of the boy's intellectual standard so largely depends. Nothing is more certain than that the improvement of the community turns upon the proper care and management of its children and no temporary success in obtaining scholarships at the universities and other distinctions, which are so often unreasonably accepted as the standard of efficiency of a school, can compensate in any way for the disregard of the plain teachings of physiology as to the relations of work and sleep which must in the long run be obeyed if the mass of ordinary boys are to be turned out fitted in the best way of which they are capable for taking their places as citizens of a great empire. Dr. Welldon, formerly headmaster of Harrow, draws attention in one of his speeches to a fact which had impressed itself upon him—namely, the number of clever brilliant boys he had known who in after life had absolutely disappeared. As Dr. Dukes remarks: "He did not recognise that these boys' immature brain tissue was exhausted before manhood."[11] In these days when athletics count for so much at school it is well to recognise that ample sleep is needed not only to render the brain and nervous system fit for active work but that it is not less necessary to maintain the muscles of an active boy in good sound condition.[12] Those who train men of picked physique for great races know this well and insist (as one of the most celebrated oarsmen of our generation informs me) on a good eight and a half to nine hours' sleep for those in training. These men, wise in their generation, do not see how much the crew can stand, nor run any avoidable risk of tiring them out before the final struggle has begun, a wisdom which it is to be feared is not always to be found in those who have the training of our youth for the great race of life.

TABLE III.—*Synopsis of Hours of Undisturbed Rest given to the Younger Boys in 40 English Public Schools.*

Class.	No. of Schools.	Ample hours.	Moderate hours.	Short hours.
A.	5	9½ to 10 or more all the year.	—	—
B.	2	9½ to 10 the two winter terms.	9 during the summer term.	—
C.	7	9½ to 10 *for a few weeks only.*	9 to 9½ the chief part of the year.	—
D.	3	—	9 to 9½ all the year.	—
E.	7	—	9 to 9½ the two winter terms.	8 to 8½ during the summer term.
F.	8	—	9 to 9½ *for a few weeks only.*	8 to 8½ the chief part of the year.
G.	8	—	—	8 to 8½ or less all the year.

It is interesting to note that there appear to be only five out of the 40 English schools which come up to the highest standard, whilst in all five of the great American schools with which I have been put into communication, through the kindness of Professor W. Osler, the approved hours are given to the younger boys—namely, from nine and a half to ten; and further, four of the headmasters of these schools have expressed the opinion quite emphatically that these hours are desirable for the well-being of the boys. 50 medical experts, medical officers of schools, and others, have expressed a decided opinion that ample hours of sleep are needful for growing boys. Amongst these are included all in this country who (as far as I can ascertain) have written definitely in standard works on the question of sleep: Sir James Crichton-Browne, Dr. Clement Dukes, Professor Bradbury, Dr. Hyslop, Professor McKendrick, and Professor Sherrington, and besides these there are many

[8] Clinical Journal, 1904, vol. xxv., No. 8, pp. 113-22.

[9] A paper read before the Beckenham Medical Society, Jan. 13th, 1905, and shortly to be published.

[10] "Education and the Nervous System." In the Book of Health. Cassell and Co. Pp. 293, 294.

[11] "Remedies for the Needless Injury to Children involved in the Present System of School Education." An address delivered before the Incorporated Association of Headmasters at their annual general meeting held in London. Rivingtons, 1899. Pp. 7, 8.

[12] I have received an interesting letter from Mr. C. B. Fry on this point. Although he was at a school where he got nine hours' sleep he writes that he felt that he never had his sleep out and required more than he got; so much did he crave for sleep that often for the first week or so of the holidays he would go to bed about 10 P.M. and sleep till one or two o'clock and sometimes even till five o'clock the next day. He adds that this was not laziness but was absolutely a natural paying of himself back: he felt that he had lived on his capital.

whose names are honoured in English medicine and whose opinions cannot be disregarded on such a question as this. Such are Sir William H. Broadbent, Sir Thomas Barlow, Sir Lauder Brunton, Sir Dyce Duckworth, Professor Clifford Allbutt (Cambridge), Professor Osler (Oxford), Dr. Collier, Dr. Dickinson, Dr. Goodhart, Dr. Savage, Dr. Eustace Smith, besides 15 medical officers of the most celebrated public schools in England. It would be impossible to enumerate all, but the list includes many who have made a special study of diseases of children and disorders of the nervous system as well as those who have specially considered the subject in relation to modern education. 27 have given the number of hours which they consider best; the remainder do not definitely specify the number of hours but speak emphatically in more general terms.

TABLE IV. (A).—*Showing the Hours of Sleep desirable for Growing Boys.*

27 medical officers of schools and other medical experts advise the following hours:—

9	advocate	10 hours.
8	,,	9½ or 9¼ to 10.
6	,,	9 to 9½ or 9 to 10
4	,,	9 as a "*minimum*."

Not a single medical expert has advocated less than nine hours.

TABLE IV. (B).—*Summary of Opinions received from Medical Officers of Schools.*

15 are in favour of longer hours. All from schools which give short hours of sleep during all or part of the year.
13 consider the hours of sleep sufficient in their schools.
In 10 of these schools nine hours or more are given throughout the year.
In two for part of the year.
In one only are short hours given throughout the year.
6 replies indefinite.
6 replies not received.

It may, I think, be rightly claimed that there is conclusive evidence to show that both on physiological and medical grounds ample hours of sleep are necessary for the best development of growing boys and that up to 16 years of age from nine and a half to ten hours of undisturbed rest in bed in winter, and from nine to nine and a half in summer, would be in no way excessive. Do they in practice get this amount and if they do not do they feel the strain? The first question may without hesitation be answered in the negative, since although in a limited number of schools some of the small boys may be in their dormitories for the length of time named there is practically no possibility, from one cause or another, of their having anything like this amount of sleep. Hours in dormitory do not, of course, represent hours of sleep, though from some of the replies I have received it would appear that they are reckoned as such. Even the number of hours in bed often do not represent hours of sleep where the boys are in dormitories, unless order is really maintained, as it appears to be in some few schools with good discipline and on the training ships. But in a good many dormitories, besides the talking and "ragging" which goes on, there are other serious disturbances of sleep which efficiently break the rest of all but sound sleepers. Amongst these have to be reckoned not only the turning up of lights when the older boys come to bed (so that although the small boys may get to bed earlier they have the light in their eyes until the older boys are settled) but also the practice of not having the dormitory reasonably darkened, a point which Sir William Gull considered to be of great importance. Thus the hours are not only curtailed by the daylight waking the boys long before it is time for them to rise, but the quality of the sleep obtained is in the case of light sleepers seriously interfered with.

It cannot be questioned that the quality of sleep is influenced by darkness and that to insure the most complete rest to the nervous system it is necessary that sleep should not only be unbroken by noise but also by the exclusion of strong light from the room. It is also important that dormitories and cubicles should be properly warmed and ventilated. Sir James Crichton-Browne writes: "A certain degree of bodily comfort is essential to the good quality of sleep, and quality is almost as important as quantity." These may seem trivial details but they are worthy the attention of those who have the well-being of young boys at heart. There are few blessings given to mankind greater than a capacity for good sound sleep; it makes work easier and more effective and probably more than anything else enables the happy possessor of the faculty to meet the strains which he must encounter in the struggle for existence. It is surely worth while for those who have charge of the young not only to give ample hours of sleep but to see that as far as possible the arrangements are such as to insure that the sleep is not disturbed, as it often is, by preventable or unnecessary causes. Those who have given attention to the subject know the importance of this. "Quality," writes Dr. Hyslop, "is as essential as quantity for the building up the preservative power of sleep." Dr. Savage also lays special stress on this point and it was a favourite maxim of Sir James Paget.

In few schools would it appear that any attempt is made to encourage the *habit* of getting proper sleep; in fact, it seems to be assumed that the less sleep a boy can do with the better it will be for him and the hardier he will become. Such an idea is, I believe, entirely fallacious. It is not much more difficult to educate a boy in good habits than in bad ones, and of the two there can be no kind of doubt that the boy who has acquired the habit of sleeping well will in the long run have greater staying power than he who has not learnt the need for giving his nervous system sufficient rest. One of my correspondents writes: "Happy the man who in the days of his youth has contracted the habit of sound regular sleep. The headmasters should really, I think, offer prizes to the best sleepers."

From all sides I have learned that short hours of sleep *do* often press heavily on the younger boys and are of no possible advantage to them. None are more emphatic on this point than the masters of private schools who keep in touch with the boys after they leave, and especially those who have sons of their own at the public schools, from whom they hear the truth. They are not quite so innocent as one of my correspondents who told me that he did not believe the small boys wanted more sleep because they never complained to the headmaster! In two great schools I am assured that boys are not infrequently taken into the sanatorium, not because they are ill, but because they are tired out. One distinguished member of our profession whom I can remember as a boy at the top of one of our great public schools writes: "As to sleep, I fully agree with you that boys, especially young boys, do not get enough at school. A little boy can honestly sleep the clock round and is all the better for ten hours. I remember that my condition as a little boy at school was one of perpetual want of sleep. I used to go to sleep at all sorts of inconvenient moments through the day in consequence. Another thing is the disturbance of the sleep of little boys by the elder boys coming to bed later. ..... That ought not to be." As showing the importance of what has been written I should like to emphasise the fact that 15 medical officers attached to 12 of the great schools in which the hours of sleep possible for the younger boys are amongst the shortest (Table IV., B) have expressed the opinion that longer hours of sleep are desirable. I have been told by one of the few who have questioned the soundness of my contention that it is clear that the younger boys do not want more sleep because if they are sent to bed early they chatter instead of going to sleep. But that they *do* want more sleep is clear from the fact that they have to be often roused out of deep sleep next morning and dress half asleep in silence (as I have been assured they often do), too weary to show any of that exuberance of spirits which is natural to the healthy boy. If it is a fact that small boys chatter as a rule when they have a chance of going to sleep it would only show that in this, as in other matters, they need education. If in other branches of the school curriculum, as in this question of sleep, the decision as to what was good for them were left entirely to the boys the whole plan of education would, I fear, very speedily be dislocated. Is it not the duty of those responsible for the order in a house to see that after a reasonable time for going to bed has been allowed silence is really enforced?

It is difficult to ascertain the precise hours of sleep which can be obtained in any particular school, since local conditions vary, as, for instance, in one house silence in the dormitories may be really enforced at a given hour, whilst in others no account may be taken of the fact that prefects keep a light, or elder boys cause a disturbance by going to bed long after the normal hour given as that at which the younger boys are settled. It is also clear that the hours of

sleep generally adopted at any particular school can be modified by the house masters to some extent. The compilation therefore of such a table as Table I. is one of peculiar difficulty and the hours given must be taken to represent the general rule of the school rather than as applicable to any particular house in that school. I have given in Table I. the hours of sleep allotted to the older boys as well as to the younger ones and it will be seen that they also are often too short.

The general results of my inquiry, after careful sifting of the evidence, reveal some curious facts. In the first place, the hours of quiet which appear to be given to boys from 13 to 15 or 16 seem to range from 7¾ to 10½ in summer and from 8¼ to 10½ in winter. Again, winter hours vary from a few weeks in some schools to 24 weeks—i.e., the two winter terms, in others. There is also a wide diversity in the hours at which the boys are called.

TABLE V. (A).—*Showing Hours at which the Boys are Called in 40 English Public Schools.*

No. of schools.	Hours at which boys are called.
1	6.0 summer term; 6.45 two winter terms.
3	6.15 most of the year; 6.45–7.0 for some weeks.
3	6.30 all the year.
9	6.30 most of the year; 6.45–7.30 for some weeks.
6	6.30 summer term; 7.0–7.30 two winter terms.
1	6.30; not stated whether any difference in winter.
1	6.45 all the year.
3	6.45 most of the year; 7.0–7.30 for some weeks.
1	6.45 summer term; 7.30 two winter terms.
2	7.0 all the year.
1	7.0 most of the year; 7.30 for some weeks.
2	7.0 summer term; 7.15–7.30 two winter terms.
3	7.0; not stated whether any difference in winter.
2	7.15 all the year.
1	7.15; not stated whether any difference in winter.
1	7.30 all the year.

TABLE V. (B).—*Showing Hours at which Boys are Called in Five of the Principal American Schools.*

No. of schools.	Hours at which boys are called.
1	6.50 all the year.
3	7.0 all the year.
1	7.0 in summer; 7.30 in winter.

Some of those who are willing to admit that the hours for sleep given in the schools with which they are connected are too short raise certain objections to increasing them. They point out that there is a difficulty in arranging different hours for boys of different ages. Such an objection cannot be regarded as a serious one, for, after all, what can be done, and is done satisfactorily, in some schools might also be done in others.

The statement to which I have already referred, "that longer hours of sleep would encourage the luxury and self-indulgence which are eating the heart out of our English boyhood and manhood," requires consideration. If it be true, every writer on the subject of sleep in this country, as far as I can trace them, is wrong, since I am unable to find any statement in writings on school hygiene which justifies the giving of as little as eight hours' quiet in the dormitories to the younger boys or which gives any countenance to the belief that nine, nine and a half, or even ten hours is either morally or physiologically bad. Commenting on the statement just quoted the headmaster of a large school writes: "It is strange, indeed, to find anyone so mistaken as to the causes of whatever may be wrong with the upbringing of our youth as to attribute it to over-sleep. One sympathises with him in his fight against a tendency to luxuriousness and general slackness" (as we all do) "but I apprehend that it is a poor weapon to defy nature. We must look elsewhere for the cause." Professor George Darwin of Cambridge writes to me on the subject as follows: "If it is a question of giving up some hours in school, or giving up sleep, I say the former is immeasurably preferable. I ask further whether lack of due sleep is not responsible for much of the prevalent slackness in school, of which there is so much reason to complain." If it can be shown that from nine to nine and a half hours of actual sleep are a physiological necessity for the average boy it can hardly be seriously maintained that it is encouraging sloth to give it. Might it not just as well be argued that to give wholesome and sufficient food is encouraging gluttony, a comforting doctrine to those who do not care to face a difficult problem, but hardly one which is likely to satisfy parents or the boys themselves.

It is an equally unsatisfactory argument that short hours of sleep are a process of selection and lead to the survival of the fittest. This presupposes that the fittest are those who happen to need the least sleep, an wholly fallacious argument, as we all know, since those who are the least affected by a scanty allowance of brain rest during their years of growth are often the dull heavy boys, whilst the keen, sensitive, intelligent boys are the ones to suffer. A master of one of the large public schools and one in which the hours of sleep are comparatively good, writes: "The hours of rest could profitably be somewhat lengthened. ..... I am inclined to think that specially in the case of the clever boys this increase of rest would increase the intellectual efficiency." Again, I have been told that to allow boys to lie in bed after the hour of 6.30, which seems specially hallowed by tradition, is to encourage them in habits of idleness. This entirely depends on the hour at which the boys can get to sleep. It is no use burning the candle at both ends. To give a new version of an old proverb:—

"Late to bed and early to rise,
Is neither physiological nor wise."

I believe in boys getting up early after a sufficient number of hours of sleep but not before; to allow them in the summer, when they have more play as well as their full allowance of work, to get into the habit of going to bed late is not defensible. The medical officer of a great school which stands comparatively high in this matter of sleep in consequence of the boys having separate rooms calls attention to this and says in summer he thinks the younger boys often do not get sufficient sleep; whilst another says that in his opinion "for a young boy not to be in bed till 10 and up at 6.30 is an unduly strained life." There seems to be a strong feeling that the difficulties of getting the boys to bed early are well-nigh insuperable and that the real solution of the difficulty is the abolition of school, or of chapel and school, before breakfast, even if not in summer, certainly during the two winter terms. There is a considerable body of opinion in favour of this abolition of school or chapel before breakfast. Three eminent physicians who have had special opportunities for arriving at a sound conclusion think the question ought to be faced and from medical officers of seven of the most important schools I have received expressions of opinion that it would be better certainly during the cold weather, if not all the year round, to abandon this practice, which is of doubtful utility, and is open to many objections. The master whose letter I have just quoted says: "I think this addition [to sleep] would be best made in the morning, as if sent to bed too early the boys would not go to sleep but be inclined to play and talk and the net result in rest would probably be diminished rather than increased. Boys, however, sleep quite soundly till late in the morning."

The objection to giving boys a fuller allowance of sleep, which needs most consideration, is the moral one. The headmaster of one of the great public schools which has produced many successful scholars, whilst admitting that many of the younger boys would be the better for more sleep than they get, urges this objection; he says that longer hours would give opportunities for those evil habits which have to be guarded against and which are so rightly dreaded in any community of boys. His argument is that if the boys are tired out when they go to bed and have to be roused from sleep in the morning they will have less temptation to evil. Such an argument I believe to be not only a libel on the average healthy-minded boy but I cannot help thinking it to be unsound, for the reason that no one was ever made moral by being made feeble. I cannot doubt that the only way to combat this evil is to make the boys healthy, active, and vigorous and to deal with the danger straightforwardly from the manly point of view. I would not have touched on the question but that it has been definitely raised in the course of my inquiries and has to be faced. I consulted Sir Constantine Holman on this point.

He has, as many of you know, been treasurer and on the council of a large public school for nearly half a century and has had wide experience in dealing with this problem; he tells me (and allows me to use his name) that physiologically it is quite certain that the younger growing boys need more sleep than those who have arrived at maturity and that an average of eight hours is needed for fully grown men in active work, whilst boys at the critical period of their development need more. He says he considers it absurd to suppose that the mere giving of an ample allowance of sleep would in any way tend to promote immorality; that, as a matter of fact, the difficulties arise at the commencement of the night and not in the morning, when the increase of sleep must be given if at all. He does not believe that with all the opportunities for evil (if the boys are so minded) the question whether they have a sufficient or insufficient amount of sleep can have any bearing whatever on the subject. This is, I believe, the common-sense view of a difficult problem; the danger cannot be avoided by aiming at weakness and repression but only by healthy teaching and inculcating self-control.

There are two other points which I must briefly mention. One is that boys are classified not by age but by place in school, so that the clever little boys, who really require longer rest than others of their age owing to the increased activity of their brains, get the shorter hours allotted to the older boys. The other is that the line between juniors and seniors seems generally to be drawn between 15 and 16 years instead of a year later. Boys up to 16 years of age are still growing and developing rapidly and need all the rest given to younger boys.

I think that I may rightly claim to have shown that in many of our schools this question of sleep has been too little considered and that the hours of sleep given to the younger boys, and I might almost say often to all the boys, are too short, whilst in others, although the needs of the younger boys have been recognised to some extent, the attempts to give them longer rest than the older ones, by sending them to bed earlier in the same dormitories, have failed for various reasons. I have tried to face the difficulties and answer the objections to giving longer hours of sleep and to show that physiology, medicine, and common-sense declare in no uncertain voice that to maintain the maximum intellectual and bodily efficiency of growing boys it is absolutely necessary not to stint their bodies and their nervous systems of rest. It seems to me that the logical conclusion is that the younger boys should be placed in separate dormitories, under effective supervision, or if, as some believe, it is better to have boys of different ages in the same dormitories that quiet should be insured for all, say at 10 P.M., and that during the summer months boys should be called at 7 and during the two winter months at 7.30. By this means from nine to nine and a half hours of quiet could with reasonable certainty be obtained. It may be urged that I am treading on dangerous ground; some may think that an attempt is being made to upset time-honoured traditions. To this I would reply that traditions based upon circumstances of life which have passed away are not necessarily the best guides for dealing with the conditions of to-day and that to respect traditions solely because they have been approved in the past make not for national efficiency but for national decay. The hurry and stress of life in the present day are infinitely greater than they have ever been before and the alarming increase in disorders of the nervous system is attracting the anxious consideration of those who have the best opportunities of estimating its extent. With these facts before us we ought to spare no pains to impress our convictions as to the necessity for carefully regulated hours of rest upon those who are responsible for the health and education of our boys, on whose intellectual efficiency and bodily vigour the future of this country so largely depends. In conclusion, I venture to hope that this Association may take the matter up and may be able to convince those who have the direction of our great schools that the subject of giving the younger boys ample sleep is one which is deserving of their most serious consideration.

Bryanston-square, W.

RUSSIAN MEDICAL MEN NOT PERMITTED TO HOLD A CONFERENCE.—The village and factory medical men of the Moscow province proposed to hold a conference in the local government house to discuss matters interesting to the profession, but, according to the *Novoe Vremya*, the legal authorities refused them the permission to do so.

THE INFLUENCE OF FRUIT ON THE PRECIPITATION OF THE URIC ACID OF THE URINE.

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FEW things perplex a patient more than the contradictory advice as to diet which is liable to be offered to him when consulting more than one medical man for the same ailment. The difference in question is doubtless due to our want of precise knowledge as to the effect of various foods, while this again is traceable, in no small degree, to the sacrifice of time and convenience demanded of those who undertake, or submit to, the experiments necessary for obtaining the desired knowledge. The subject, however, is important, and I hope through some experiments I have been making on myself to throw a little light on one or two of its many obscure points, one object of the work described below being to ascertain if there is a scientific basis for the practice, followed to some extent at any rate, of allowing certain fruits and denying others to those who suffer from uric acid calculus and gravel.

To ascertain the influence of an article of diet in increasing or lessening the tendency of the uric acid to spontaneous precipitation, it is of course necessary to have a means of measuring the precipitability of the acid in a given specimen of urine. If all specimens deposited uric acid on keeping the information could be obtained from a knowledge of the percentage amount of uric acid and the quantity precipitated in a given time under uniform conditions; but many, even acid, urines may be kept for very lengthened periods by means of antiseptics without any separation of their uric acid in a solid form. It is possible, none the less, by a very simple application of the known laws controlling solution and precipitation to obtain an available and satisfactory test.

A solid like uric acid will not be deposited from its solution until its solvent is supersaturated; while supersaturation, on the other hand, may be carried to a considerable extent without the occurrence of precipitation. If, however, ever so small a quantity of free uric acid is present in the solid state in such supersaturated solution, uric acid deposition will begin and continue till supersaturation has given place to saturation, equilibrium being established. The rate of deposition will vary with circumstances and is largely dependent on the surface area presented by the solid, while it is quickened by shaking, stirring, &c. These remarks apply to solutions of free uric acid and His[1] and Klemperer[2] have shown that a part, even as much as 96 per cent., of the uric acid of the urine may be in this condition. Part, however, is combined with base, and this portion will not conform to the rule stated until it has been set free by the addition of some strong acid which in the old phraseology was said to take the base by virtue of its stronger affinity for this, while it is now known that the result is determined by the feebler tendency of the weaker acid (uric) to undergo ionisation. We can, therefore, by adding a strong acid, free any uric acid which is combined with base and, provided that a mere grain of uric acid is present in the solid form, insure the deposition of all that is in solution over and above the point of saturation. But the strong acid serves another purpose—viz., that of lowering the saturation point in accordance with the law that the solubility of an electrolyte is lessened by the addition of another electrolyte which yields an ion in common with it. Besides the free uric acid and that which is combined with base there is a small quantity in the form of organic combination, but as this, for the knowledge of which we are indebted to His,[3] is not thrown down by acids, it does not need consideration in the present connexion.

The above principles are illustrated by the three following experiments, showing that while the rate of uric acid deposition is determined, *ceteris paribus*, by the amount of strong acid added, the quantity thrown down is independent

[1] Therapie der Gegenwart, October, 1901.
[2] Verhandlungen des 20ten Congresses für Innere Medicin, Wiesbaden, 1902.
[3] Loc. cit.

of this, provided always that the acid is in sufficient quantity to liberate the whole of the uric acid which is combined with base and to start the precipitation and that time enough is allowed for the completion of this process. The period necessary is sometimes very long and is shortened by anything which so modifies the precipitation as to increase the surface area presented by a given quantity of uric acid.

Experiment A.

1. 50 cubic centimetres filtered afternoon urine, containing 0·0286 gramme uric acid, 1 drop dilute H_2SO_4 (= 6·1 cubic centimetres decinormal). Filtered through small filter after 48 hours. The uric acid, after washing with dilute HCl and then with alcohol was Kjeldahled and its (N) estimated. Amount of uric acid 0·0037 gramme.

2. 50 cubic centimetres of the same urine, 2 drops of the same acid (= 12·2 cubic centimetres decinormal). Uric acid deposit after 48 hours 0·0103 gramme.

3. 50 cubic centimetres of the same urine, 4 drops acid. Uric acid deposit after 48 hours 0·0134 gramme.

5 drops of $CHCl_3$ were added to each specimen in this and other experiments and the addition was repeated when considered necessary.

Experiment B.

Dec. 31st, 9.50 A.M.: 50 cubic centimetres urine, 1 drop dilute H_2SO_4 (= 4·39 cubic centimetres decinormal).
Feb. 15th, 5.10 P.M.: No deposit of uric acid.

Dec. 31st, 9.50 A.M.: 50 cubic centimetres urine, plus 2 drops acid.
Jan. 2nd, 10 P.M.: No deposit.
Jan. 3rd, 10 A.M.: 3 uric acid crystals.
Jan. 4th, 4.30 P.M.: A few more crystals.
Jan. 11th, 10.20 A.M.: General deposit of uric acid.
Feb. 15th, 5.10 P.M.: Filtered. Uric acid 0·0136 gramme.

Dec. 31st, 9.50 A.M.: 50 cubic centimetres urine, plus 3 drops acid.
5 P.M.: no deposit; 10.10 P.M.: a few crystals of uric acid.
Jan. 1st, 9.45 A.M.: Deposit increased.
Feb. 15th, 5.35 P.M.: Filtered. Uric acid 0·0147 gramme.

Dec. 31st, 9.50 A.M.: 50 cubic centimetres urine, plus 15 drops acid; 11.15 A.M.: uric acid precipitation begun.
Feb. 15th, 6.10 P.M.: Filtered. Uric acid 0·0130 gramme.

The total quantity of uric acid in 50 cubic centimetres of the urine used in this experiment was 0·0201 gramme.

Experiment C.

Nov. 21st: 100 cubic centimetres urine, plus 1 drop dilute H_2SO_4. 5.35 P.M.: 50 cubic centimetres of this mixture, 20 cubic centimetres sodium urate solution, made by shaking excess of salt with water at intervals during 24 hours, filtering, warming the filtrate, and refiltering after the filtrate had cooled.
Nov. 23th: No uric acid deposit. Attacked by bacteria.

Nov. 21st, 5.35 P.M.: 50 cubic centimetres urine, plus 1 drop acid, plus 20 cubic centimetres sodium urate solution. 9 P.M.: No deposit.
Nov. 24th, 10 A.M.: A very slight precipitate of uric acid.
Nov. 26th: Turbid from bacteria.

Nov. 21st, 5.35 P.M.: 50 cubic centimetres urine, plus two drops acid, plus 20 cubic centimetres sodium urate solution. 9 P.M.: Abundant uric acid deposit.
Dec. 14th, 8.30 P.M.: Filtered. Uric acid = 0·0277 gramme.

Nov. 21st, 5.35 P.M.: 50 cubic centimetres urine, plus 3 drops acid, plus 20 cubic centimetres sodium urate solution. 9 P.M.: Abundant uric acid precipitate.
Dec. 14th, 8.30 P.M.: Filtered. Uric acid = 0·0265 gramme.

Nov. 21st, 5.35 P.M.: 50 cubic centimetres urine, plus 6 drops acid plus 20 cubic centimetres sodium urate solution. 9 A.M.: Abundant deposit.
Dec. 14th, 8 P.M.: Filtered. Uric acid = 0·0268 gramme.

Nov. 21st, 5.35 P.M.: 50 cubic centimetres urine, plus 20 drops acid, plus 20 cubic centimetres sodium urate solution.
Dec. 14th, 6.30 P.M.: Filtered. Uric acid = 0·0283 gramme.

Of the acid used in this experiment 1 drop = 4·39 cubic centimetres decinormal.

In Experiment A, in which the time allowed for precipitation was 48 hours, the quantity of uric acid thrown down by the addition of four drops of the acid used was nearly four times as great as that precipitated by one drop of the same acid from the same urine.

In Experiment B one drop of the acid employed was not enough to cause precipitation, but two, three, and 15 drops gave, after 46 days, practically the same amount of deposit—viz., 0·0136 gramme, 0·0147 gramme, and 0·0130 gramme.

In Experiment C no deposit was produced by half a drop at the end of seven days. 1 drop caused a precipitate on the third day but the specimen had to be thrown away because of the appearance of bacteria in spite of the $CHCl_3$ added to it. 2, 3, 6, and 20 drops precipitated each an amount which after 23 days was practically equal—viz., 0·0277 gramme, 0·0265 gramme, 0·0268 gramme, and 0·0283 gramme.

The result would of course appear more striking if larger quantities of urine were used, as the ratio of the inevitable error of observation to the total amount of uric acid precipitated would be thereby reduced, but when the results with small quantities can be readily and clearly interpreted these are to be preferred because of the time saved.

The influence of certain kinds of fruit in favouring or hindering the precipitation of the uric acid was tested on myself by ascertaining the minimal amount of added dilute sulphuric acid which sufficed to start precipitation within a given arbitrary time—viz., 48 hours. The urine of the 24 hours was collected at 10 A.M., measured, and diluted with distilled water, in Series 1 to 1500 cubic centimetres and in Series 2 to 2000 cubic centimetres. After careful filtration 50 cubic centimetres were put into each of several similar beakers and 1 drop of dilute H_2SO_4 of a known strength from a burette and 5 drops of chloroform added to one, which was at once shaken to secure immediate mixing of the acid, 2 drops of acid and 5 of chloroform were added to a second beaker, 3 to a third, and so on. The beakers, covered each by a watch glass, were placed together and examined from time to time with a lens. It is, of course, necessary that in any given experiment all the specimens shall be subjected, as far as possible, to the same conditions as to shaking, filtering, smoothness of surface of beakers, &c. The total nitrogen was estimated by Kjeldahl's and the uric acid by a slight modification of the Ludwig-Salkowski method, and the phosphoric acid by means of uranium acetate. My diet during the first series consisted of *café au lait*, dry toast and butter for breakfast; of soup, fish, poultry or meat, the latter generally veal, potatoes, and a green vegetable, with two glasses of light white Italian wine and a cup of black coffee, for lunch; while in the evening I took only a basin of bread-and-milk, followed by either tapioca or bread-and-butter pudding and one tablespoonful of brandy with soda-water. During the second series soup was omitted, red wine in the same quantity was taken instead of white, and in the evening the tablespoonful of brandy was left out. I should have preferred to have adhered always to the same meat and vegetable and to have weighed the quantities, but this is difficult in experiments extending over months, and the results prove sufficiently clear under the method adopted.

Series 1.

In Series 1 the fruit and non-fruit periods, each occupying four days, followed one another continuously, but in the second series a period lasted five days, the urine on the first day of each period not being examined. The fruits first used were pears, fresh figs, and grapes, and the weights given are always those of the pulp taken, apart from rind and seeds, when these were separable. The acid employed in Series 1 was of such strength that 1 drop = 1·9 cubic centimetres decinormal and the quantity of this needed to start precipitation of uric acid during the four days of the pear period was 2, 2, 3, and 3 drops respectively; total 10 drops = 19 cubic centimetres decinormal. During the following non-fruit period the amount was 2, 1, 1, and 2 drops; total 6 drops = 11·4 cubic centimetres decinormal. In the fig period 2, 1, 3, and 2 drops were needed; total 8 drops = 15·2 cubic centimetres decinormal. In the succeeding non-fruit period 1, 1, 1, and 2 drops; total 5 drops = 9·5 cubic centimetres decinormal. In the grape period 2, 3, 3, and 3 drops; total 11 drops = 20·9 cubic centimetres decinormal.

Non-fruit periods.	Fruit periods.
11·4 c.c. decinormal.	19·0 c.c decinormal.
9·5 „ „	15·2 „ „
	20·9 „ „

There is no doubt, therefore, that in each case the fruit lessened the tendency to precipitation of the uric acid. In this series the amount of uric acid was not determined daily, but an estimation of it was made at the end of each period in a mixture of equal parts of the four days' urine. For the two non-fruit periods (Oct. 8th to 11th and 16th to 19th) the daily mean was 0·3240 gramme and 0·3360 gramme, while for the fruit periods it was 0·327 gramme (pears), 0·3940 gramme (figs), and 0·4330 gramme (grapes). The total nitrogen, acidity, &c., are given in Table IV.

Series 2.

The acid used for precipitating in this series was rather less strong than that employed previously—viz., 1 drop = 1·2 cubic centimetres decinormal, the amounts needed being:—

Date period ...	1, 2, 3, 3 drops;	total 9 drops	= 10·8 c.c. decinormal.			
Non-fruit period	½, ½, ½, 3	„	„	4½	„	= 5·2 „ „
Orange	.. 4, 4, 4, 4	„	„	16	„	= 19·2 „ „
Non-fruit	.. 1, 1, 2, 2	„	„	6	„	= 7·2 „ „

The quantity of uric acid in 50 cubic centimetres of urine was :—

	Gramme.	Gramme.	Gramme.	Gramme.
Date period	0·0109	0·0100	0·0107	0·0100
Non-fruit period ...	0·0107	0·0107	0·0121	0·0116
Orange ,, ...	0·0103	0·0107	0·0115	0·0116
Non-fruit ,, ...	0·0100	0·0105	0·0091	0·0083

The daily average of uric acid was thus : 0·0104 gramme, 0·0112 gramme, 0·0110 gramme, and 0·0094 gramme for the four periods respectively and if the amount in the first non-fruit period is a little greater than that in the preceding and following periods and might be expected, therefore, to need somewhat less acid for precipitation, the quantity in the second non-fruit period is less than in any other period, though the total quantity of acid required to cause precipitation was only 7·2 cubic centimetres decinormal, against 10·8 cubic centimetres and 19·2 cubic centimetres in the two fruit periods. We have, therefore, clear proof that dates and oranges act like pears, fresh figs, and grapes in hindering the precipitation of the uric acid of the urine when taken in the quantities used in these experiments.

I tried next the effect of marmalade made with equal weights of sugar and oranges. The quantity taken daily was 172 grammes, 179 grammes, 170 grammes, and 185 grammes, the diet being in other respects unchanged. The acid used for precipitating was of the same strength as the last. The amounts of uric acid in 50 cubic centimetres of urine of the several days were 0·0084 gramme, 0·0085 gramme, 0·0086 gramme, and 0·0082 gramme, with a daily average of 0·0084 gramme. This is distinctly below that of any other period and a larger quantity of acid would therefore, other things being equal, be required to start the precipitation. The actual amounts needed were two, two, three, and three drops. Total, 12 cubic centimetres decinormal, against 19·2 cubic centimetres decinormal when oranges were taken. But the total amount of orange pulp consumed in the orange period was 1254 grammes, against 706 grammes marmalade and only half of this consisted of orange—viz., pulp *plus* rind. When, however, the natural acidity and the percentage of uric acid agreed in the marmalade and in the non-fruit periods a similar correspondence existed between the quantities of acid needed for precipitating (Table I.).

The difference between 2·4 cubic centimetres and 3·6 cubic centimetres is, indeed, 50 per cent. of the former, but it must be remembered that this difference corresponds to one drop only of the acid and if the experiment had been made more delicate by using a more diluted acid for precipitating the numbers would have approximated even more closely to each other. It would appear, then, either that the quantity of orange pulp contained in the marmalade taken was not sufficient to exercise a distinct influence in lessening the precipitability of the uric acid or that such influence was counteracted by that of the sugar mixed with it. On the other hand, there is no sign that the marmalade favoured the precipitation of the uric acid. Lest sugar should be capable of acting injuriously when taken for a longer period I continued the marmalade for 27 days, with an interruption of

TABLE I.

—	Uric acid in 50 c.c. of urine (grammes).	Natural acidity; c.c. decinormal in 50 c.c. of urine.	Acid needed for starting precipitation within 48 hours in 50 c.c. of urine.
Non-fruit period (March 11th).	0·0083	7·65	3·6 c.c. decinormal (3 drops).
Marmalade period (March 13th).	0·0084	8·1	2·4 c.c. decinormal (2 drops).
Marmalade period (March 14th).	0·0085	8·45	2·4 c.c. decinormal (2 drops).
Marmalade period (March 15th).	0·0086	7·95	3·6 c.c. decinormal (3 drops).
Marmalade period (March 16th).	0·0082	7·7	3·6 c.c. decinormal (3 drops).

TABLE II.

First Experiment.

Acidity of urine determined by phenolphthalein; cubic centimetres decinormal.	Total urine; cubic centimetres.	Acid needed for starting precipitation in 50 cubic centimetres urine within 48 hours. 1 drop = 1·2 cubic centimetres decinormal.
324	945	2 drops = 2·4 c.c. decinormal.
338	974	2 ,, = 2·4 ,, ,,
318	1079	3 ,, = 3·6 ,, ,,
308	1097	3 ,, = 3·6 ,, ,,
Total ... 1288	4095	10 12·0
Daily average, 322	1173	2·5 3·0

Second Experiment.

312	1196	1 drop = 2·2 c.c. decinormal.
294	1311	2 drops = 4·4 ,, ,,
336	1504	1 drop = 2·2 ,, ,,
274	1371	2 drops = 4·4 ,, ,,
Total ... 1216	5382	6 13·2
Daily average, 304	1345	1·5 3·3

TABLE III.—SHOWING THE ACIDITY OF THE URINE WHEN PRECIPITATION BEGAN.

Period.	Uric acid in 50 c.c. of urine (grm.).	Acidity in c.c. decinormal.	Period.	Uric acid in 50 c.c. of urine (grm.).	Acidity in c.c. decinormal.
Marmalade (March 12th–13th) ...	0·0084	Natural ... 8·1 Added ... 2·4 Total ... 10·5	Non-fruit (March 10th–11th) ...	0·0083	Natural ... 7·65 Added ... 2·4 Total ... 10·05
Orange (,, 3rd–4th)	0·0107	Natural ... 6·25 Added ... 4·8 Total ... 11·05	,, (,, 8th–9th)	0·0105	Natural ... 9·4 Added ... 1·2 Total ... 10·6
,, (,, 3rd–4th)	0·0107	Natural ... 6·25 Added ... 4·8 Total ... 11·05	,, (Feb. 25th–27th)	0·0107	Natural ... 9·6 Added ... 0·6 Total ... 10·2
,, (,, 4th–6th)	0·0115	Natural ... 6·3 Added ... 4·8 Total ... 11·1	,, (,, 26th–March 1st)	0·0116	Natural ... 7·5 Added ... 3·6 Total ... 11·1
Date (Feb. 22nd–23rd)	0·0107	Natural ... 7·1 Added ... 3·6 Total ... 10·7	,, (,, 25th–27th)	0·0107	Natural ... 9·6 Added ... 0·6 Total ... 10·2
,, (,, 21st–22nd)	0·0100	Natural ... 9·2 Added ... 2·4 Total ... 11·6	,, (March 7th–8 h)	0·0100	Natural ... 9·0 Added ... 1·2 Total ... 10·2

five days, the dose being 170 grammes for four days, 150 grammes for 19 days, and again 170 grammes for four more days. The diet in other respects remained as before. The results during the last four days agree with those of the four days of the former experiment (Table II.).

It must be admitted therefore that marmalade does not increase the precipitability of the uric acid of the urine. No other sugar than that in the marmalade was taken during any of these experiments, saccharin being substituted.

In seeking an explanation of the *modus operandi* of the above fruits in diminishing the tendency to precipitation of the uric acid attention is naturally directed to the lessened acidity of the urine. But as the factors influencing uric acid precipitation from this liquid are numerous it seemed desirable to inquire if other changes, as well as that in the reaction of the urine, were operative in the experiments just described. I did not succeed in finding any. It is true that alcohol always caused a greater precipitate in the urine of the fruit periods than in that of the others when this point was tested and that the precipitate of the former periods had a greater solvent power for uric acid than that of the latter. This, however, can be explained by the influence of the altered reaction on the form assumed by the phosphates. The precipitate during all periods contained a diastatic ferment but the activity of this did not seem to be increased by the taking of fruit. As activity and quantity of ferment do not necessarily run parallel it is possible that the latter may have been augmented. The urine, in respect of

TABLE IV.—SHOWING THE GENERAL CONDITION OF THE URINE DURING THE FRUIT AND THE NON-FRUIT PERIODS (SERIES 1).

Period.	Quantity of fruit pulp taken daily.	Date.	Quantity of urine.	Specific gravity of diluted urine.	Total (N) daily output.	Uric acid daily mean.	Total acidity determined by phenol-phthalein.	Total P_2O_5.	P_2O_5 as dihydrogen acid.	Acid needed to start uric acid precipitation in 50 c.c. of diluted urine in 48 hours.	Range of temperature during experiment.
	Grms.		c.c.		Grms.	Grms.	c.c. decinormal.	Grms.	Grms.	c.c. decinormal.	Deg. F.
Pear	676	Oct. 4th.	1148	—	12·22	0·3270	330	2·061	1·042	3·8	65·3 to 70·7
	341	,, 5th.	1079	—	10·64	,,	300	1·689	0·922	3 8	
	382	,, 6th.	1345	—	11·10	,,	256	1·702	0·792	5 7	
	413	,, 7th.	1498	—	11·42	,,	300	1·762	0·928	5·7	
Total	1812	—	5070	—	45 33	—	1185	7·214	3·684	19·0	—
Daily average	453	—	1267	—	11·39	0·3270	296	1·803	0 921	4·75	—
Non-fruit	0	Oct. 8th.	1028	1014	11·19	0·3240	330	1 612	0·824	3·8	62 6 to 68
	,,	,, 9th.	1222	1016	12·28	,,	330	1·955	1·002	1·9	
	,,	,, 10th.	1090	1016	12·72	,,	390	2·100	1·270	1·9	
	,,	,, 11th.	1033	1017	13·18	,,	330	2·325	1·104	3·8	
Total	,,	—	4371	—	49·37	—	1380	8·002	4·390	11·4	—
Daily average	0	—	1092	1015	12·34	0·3240	345	2·000	1·097	2·8	—
Fresh fig*	262·0	Oct. 12th.	1937	1014	13 93	0 3940	310	1·888	0·929	3 8	55·4 to 67·1
	198·0	,, 13th.	1423	1018	13·48	,,	300	1·843	0·855	1·9	
	204·0	,, 14th.	1571	1018	14·26	,,	267	1·806	0·732	5·7	
	284·9	,, 15th.	1583	1016	12·54	,,	285	1·780	0·389	3·8	
Total	948·9	—	6514	—	54·21	—	1162	7·3 7	3·405	15 2	—
Daily average	237·	—	1628	1016	13·55	0 3940	290	1·829	0 851	3 8	—
Non-fruit	0	Oct. 16th.	1162	1017	13·31	0·3380	315	1·920	0·958	1·9	60·8 to 65 3.
	,,	,, 17th.	891	1015	13·41	,,	321	1·530	0·831	1·9	
	,,	,, 18th.	1278	1016	14·48	,,	345	1·492	1·062	1·9	
	,,	,, 19th.	868	1015	12·44	,,	318	1·747	0 859	3·8	
Total	,,	—	4199	—	53·64	—	1299	6·689	3 710	9·5	—
Daily average	0	—	1049	1015	13·41	0·3380	324	1·672	0·927	2 37	—
Grapes	321	Oct. 20th.	1010	1017	13·61	0 4330	300	1·747	0 844	3·8	61 7 to 65·3.
	295	,, 21st.	1356	—	12·03	,,	270	1·695	0·878	5·7	
	364	,, 22nd.	1364	1016	12·72	,,	238	1·845	0·709	5 7	
	447	,, 23rd.	1407	1016	12·26	,,	256	1·605	0·712	5·7	
Total	1427	—	5147	—	50·62	—	1064	6·890	3·093	20 9	—
Daily average	356·7	—	1286·7	—	12·65	0·4330	266	1·722	0·773	5·22	—

* It is to be noted that on three days of this period the urine exceeded 1500 cubic centimetres. This would be compensated in greater or less degree by the excretion of a larger quantity of uric acid in this than in any other period except the last.

diastatic activity, led to the same conclusion as the precipitate obtained from it by alcohol. There seemed also no evidence of an increase in the amount of Garrod's urochrome which Klemperer has shown to be an important solvent of uric acid. In judging colorimetrically of the urinary pigments it must not be forgotten that both keeping and increase of acidity darken the urine. The phloroglucine test for the pentoses, applied in the manner recommended by Salkowski, did not show a trustworthy and constant difference of colour between the fruit and non-fruit periods.

It remained, finally, to inquire if the diminished acidity of the urine during the fruit periods sufficed *per se* to account for the *degree* of alteration in the precipitability of the uric acid. On Feb. 22nd-23rd (date period) and on Feb. 25th-27th (non-fruit period) the amount of uric acid was the same and the reaction different. I therefore equalised the latter by adding the necessary quantity of alkali to the more acid urine and of acid to the more alkaline, while the same volume of water was added to other specimens and the precipitability of the uric acid tested in the usual way:—

Experiment 1.

A. (Date period), less acid urine.	B. (Non-fruit period), more acid urine.
March 3rd: 220 c.c. urine (Feb. 22nd to 23rd) 11 c.c. water. 7.30 P.M.: 50 c.c. of the mixture. 1 drop acid.	March 3rd: 220 c.c. urine (Feb. 25th to 27th). 11 c.c. NaOH decinormal. 7.30 P.M.: 50 c.c. of the mixture. 1 drop acid.
March 22nd, 10 A.M.: No deposit of uric acid.	March 22nd, 10 A.M.: No deposit of uric acid.

TABLE V.—SHOWING THE GENERAL CONDITION OF THE URINE DURING THE FRUIT AND THE NON-FRUIT PERIODS (SERIES 2).

Period.	Quantity of fruit pulp taken daily.	Date.	Daily quantity of urine.	Specific gravity of diluted urine.	Total (N) daily output.	Uric acid, daily output.	Total acidity determined by phenolphthalein.	Total P_2O_5, daily output.	P_2O_5 as dihydrogen acid, daily output.	Acid needed to start precipitation of uric acid in 48 hours.	Range of temperature during experiments.
	Grms.		c.c.		Grms.	Grms.	c.c. decinormal.	Grms.	Grms.	c.c. decinormal.	Deg. F.
Date	158·0	Feb. 21st	1224	1014	14·43	0·4368	348	1·950	1·066	1·2	46 to 48
	156·5	,, 22nd	1203	1012	14·45	0·4032	308	2·214	1·162	2·4	
	106·0	,, 23rd	1425	1014	13·94	0·4284	324	1·740	0·818	3·6	
	102·0	,, 24th	1283	1012	13·42	0·4032	290	1·640	0·830	3·6	
Total	522·5	—	5035	—	56·24	1·6716	1290	7·744	3·876	10·8	—
Daily average	130·6	—	1258	1013	14·06	0·4179	322·5	1·936	0·969	2·7	—
Non-fruit	0	Feb. 26th	1262	1013	14·70	0·4284	324	1·912	0·958	0·6	46 to 48
	,,	,, 27th	1319	1013	14·70	0·4284	324	1·912	0·958	0·6	
	,,	,, 28th	1225	1015	15·27	0·4872	384	1·906	0·948	0·6	
	,,	March 1st	1440	1015	14·82	0·4653	300	1·980	0·906	3·6	
Total	,,	—	5246	—	59·49	1·8093	1452	7·710	3·830	5·4	—
Daily average	0	—	1311	1014	14·87	0·4523	363	1·927	0·957	1·35	—
Orange	304	March 3rd	1580	1013	13·63	0·4149	306	1·900	0·930	4·8	48 to 50
	308	,, 4th	1631	1014	13·63	0·4284	250	1·980	0·770	4·8	
	320*	,, 5th	1458	1015	14·16	0·4620	252	2·000	0·684	4·8	
	322*	,, 6th	1329	1015	14·16	0·4620	252	2·000	0·684	4·8	
Total	1254	—	5998	—	55·98	1·7673	1060	7·940	3·068	19·2	—
Daily average	313·5	—	1499	1014	13·99	0·4418	265	1·985	0·767	4·8	—
Non-fruit	0	March 8th	970	1011	14·11	0·4032	360	2·024	1·120	1·2	48 to 53
	,,	,, 9th	1302	1015	15·41	0·4216	376	2·116	1·106	1·2	
	,,	,, 10th	1299	1013	13·18	0·3662	294	1·910	1·134	2·4	
	,,	,, 11th	1556	1012	13·30	0·3346	306	1·834	0·966	2·4	
Total	,,	—	5127	—	56·00	1·5256	1336	7·884	4·228	7·2	—
Daily average	0	—	1281	1012	14·00	0·3814	0·334	1·971	1·057	1·8	—
Marmalade	172	March 13th	945	1012	12·88	0·3360	324	1·830	0·966	2·4	52 to 55
	179	,, 14th	974	1011	13·00	0·3416	336	1·980	1·008	2·4	
	170	,, 15th	1079	1012	13·60	0·3444	318	1·800	0·932	3·6	
	185	,, 16th	1097	1010	11·98	0·3276	306	1·700	0·894	3·6	
Total	706	—	4095	—	51·46	1·3496	1286	7·310	3·800	12·0	—
Daily average	176·5	—	1173	1011	12·86	0·3374	322	1·827	0·965	3·0	—

* The urine of these two days was mixed and examination made of the mixture.

March 3rd, 7.30 P.M.: 50 c.c. of same mixture. 2 drops acid.	March 3rd, 7.30 P.M.: 50 c.c. of same mixture. 2 drops acid.
March 8th, 8.30 P.M.: A few scattered crystals.	
March 13th, 8 P.M.: Crystals enlarging. No general deposit.	
March 22nd, 10 A.M.: Crystals enlarging. No general deposit.	March 22nd, 10 A.M.: No deposit.
March 3rd, 7.30 P.M.: 50 c.c. of same mixture + 3 drops acid.	March 3rd, 7.30 P.M.: 50 c.c. of same mixture + 3 drops acid.
March 4th, 10 A.M.: Uric acid deposit doubtful.	March 4th, 10 A.M.: Deposit doubtful.
March 4th, 4.30 P.M.: Uric acid deposit distinct.	March 4th, 4.30 P.M.: Deposit distinct.
March 3rd, 7.30 P.M.: 50 c.c. of same mixture + 4 drops acid.	March 3rd, 7.30 P.M.: 50 c.c. of same mixture + 4 drops acid.
March 4th, 10 A.M.: General uric acid deposit.	March 4th, 10 A.M.: General deposit.
C. (Non-fruit period), more acid urine.	D. (Date period), less acid urine.
March 4th: 220 c.c. urine (Feb. 25th to 27th), 11 c.c. water. 7.10 P.M., 50 c.c. of mixture + 1 drop acid.	March 4th: 220 c.c. urine (Feb. 22nd to 23rd), 11 c.c. decinormal H_2SO_4. 7.10 P.M.: 50 c.c. of mixture + 1 drop acid.
March 5th, 10 A.M.: Uric acid deposition begun.	March 5th, 10 A.M.: Uric acid deposit but apparently rather less abundant than in corresponding specimen of Feb. 25th to 27th.
March 4th, 7.10 P.M.: 50 c.c. of mixture + 2 drops acid.	March 4th, 7.10 P.M.: 50 c.c. of mixture + 2 drops acid.
March 5th, 10 A.M.: General uric acid deposit.	March 5th, 10 A.M.: deposit general.
March 4th, 7.10 P.M.: 50 c.c. of mixture + 3 drops acid.	March 4th, 7.10 P.M.: 50 c.c. of mixture + 3 drops acid.
March 5th, 10 A.M.: Uric acid deposit abundant.	March 5th, 10 A.M.: deposit abundant.
March 4th, 7.10 P.M.: 50 c.c. of mixture + 4 drops acid. 8.30 P.M.: Distinct uric acid deposit.	March 4th, 7.10 P.M.: 50 c.c. of mixture + 4 drops acid. 8.30 P.M.: Deposition begun but amount seems rather less than in urine of Feb. 25th to 27th.

Experiment 2.

A. (Non-fruit period), more acid urine.	B. (Orange period), less acid urine.
April 16th: 220 c.c. urine (Feb. 28th to March 1st), 6 c.c. NaOH decinormal. 9.15 P.M.: 50 c.c. of mixture, 1 drop acid.	April 16th: 220 c.c. urine (March 4th to 6th), 6 c.c. water. 9.15 P.M.: 50 c.c. of mixture, 1 drop acid.
April 20th, 9.15 P.M.: No deposit of uric acid.	April 20th, 9.15 P.M.: No deposit of uric acid.
April 16th, 9.15 P.M.: 50 c.c. of mixture + 2 drops acid.	April 16th, 9.15 P.M.: 50 c.c. of mixture + 2 drops acid.
April 20th, 9.15 P.M.: No uric acid deposit.	April 20th, 9.15 P.M.: No deposit.
April 16th, 9.15 P.M.: 50 c.c. of mixture + 3 drops acid.	April 16th, 9.15 P.M.: 50 c.c. of mixture + 3 drops acid.
	April 17th, 5.15 P.M.: A uric acid crystal here and there.
April 19th: No deposit. One drop more acid added.	April 19th: One drop more acid.
April 20th, 9.15 P.M.: Four uric acid crystals.	April 20th, 9.15 P.M.: Crystals larger; few, if any, fresh ones.
C. (Orange period), less acid urine.	D. (Non-fruit period), more acid urine.
April 16th: 220 c.c. urine (March 4th–6th) 6 c.c. H_2SO_4 decinormal.	April 16th: 220 c.c. urine (Feb. 28th to March 1st), 6 c.c. water.
April 16th, 9.15 P.M.: 50 c.c. of mixture + 1 drop acid.	April 16th, 9.15 P.M.: 50 c.c. of mixture + 1 drop acid.
April 20th, 9.15 P.M.: No uric acid deposit.	April 20th, 9.15 P.M.: No uric acid deposit.
April 16th, 9.15 P.M.: 50 c.c. of mixture + 2 drops acid.	April 16th, 9.15 P.M.: 50 c.c. of mixture + 2 drops acid.
April 18th, 5.15 P.M.: 3 uric acid crystals.	April 18th, 5.15 P.M.: 1 crystal.
April 20th, 9.15 P.M.: 7 uric acid crystals.	April 20th, 9.15 P.M.: 2 crystals.
April 16th, 9.15 P.M.: 50 c.c. of mixture + 3 drops acid.	April 16th, 9.15 P.M.: 50 c.c. of mixture + 3 drops acid.
April 17th, 8.25 P.M.: Deposition of uric acid begun.	April 18th, 8.25 P.M.: Deposition begun.

The precipitation of uric acid evidently runs the same course in specimens containing equal amounts of this substance in both the fruit and non-fruit periods, provided that the degree of acidity is the same. If further confirmation of this were needed it is afforded by a comparison of the amount of acid required to cause precipitation with the normal acidity of the urine in the two periods in those cases in which the amounts of uric acid are exactly or nearly alike (Table III.). In only one case, the last, do the numbers differ from each other by more than corresponds to one drop of the acid used for precipitating (= 1·2 cubic centimetres decinormal); and this correspondence is as close as can be expected to occur. It would be closer in proportion to the degree of dilution of the acid used for precipitating. In the exceptional case in which the numbers are 11·6 and 10·2 I was in doubt whether to consider the precipitation as caused by one drop or by two drops of acid, for with one drop precipitation had really begun, but there were only five small crystals visible with the pocket lens, while on the following day the precipitation was general—one drop was less than was required and two drops were more. Had I taken one instead of two as the efficient number the figures would have been 10·4 and 10·2. It may be maintained, therefore, that the effect of the several fruits used in this experiment in lessening the precipitability of the uric acid is due essentially, if not wholly, to the diminished acidity of the urine.

Conclusions.—1. Pears, fresh figs, grapes, dates, and oranges may be taken not only with impunity but with distinct advantage by those who suffer from uric acid calculus and gravel. 2. The beneficial effect, which will be, *ceteris paribus*, in proportion to the amount taken, is due essentially, if not entirely, to the lessened acidity of the urine. 3. Marmalade does not raise the precipitability of the uric acid, though in the quantity likely to be taken it fails to produce the opposite effect, probably because the amount of fruit pulp is insufficient for that purpose.

If it should be suggested that the effects described above are not necessarily those which would be seen in patients suffering from uric acid calculus and gravel, I would reply that I can produce in myself uric acid gravel at will, not for a day or two only but for long periods, by taking a suitable diet for the necessary time, while experiments on a friend led to a similar result. When fruit disagrees—i.e., deranges the digestion—it would, of course, like any other article of food acting in a similar manner, not be prescribed. The experiment is being extended to other varieties of fruit and to some substances other than fruit.

Oxford.

EXPERIENCES OF THE TREATMENT OF THE CANCEROUS CERVIX UTERI BY THE ABDOMINAL ROUTE, WITH PELVIC DISSECTION.[1]

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IN the treatment of cancer of the cervix uteri a new phase is looming large on the British gynæcological horizon, and I have thereby been encouraged to bring before you shortly my experiences of the so-called radical operation. The brief time at our disposal does not permit of mention of all the problems involved and I therefore propose to consider chiefly the operative aspects of the subject.

In the first place I venture to remind you of certain anatomical details connected with the pelvic course of the ureters and with the lymphatic vessels passing from the cervix uteri to the glands lying in the pelvic connective tissues. The ureter, the pars pelvica, 12 centimetres in length, extends from the pelvic brim to the bladder. It is subdivided into pelvic and vesical portions, but this is of no importance from the operative point of view. The ureter is inclosed in a sheath of loose connective tissue in which course the special nutritive vessels. These vessels are:—1. The superior ureteric artery, which springs from the ovarian artery as it crosses the ureter in the abdomen and runs downwards, dividing into branches. 2. The inferior ureteric artery or arteries, derived either from the uterine as it crosses the ureter or from the vesical artery. These latter pursue an upward course. Having an independent vascular supply the ureter can be separated from its connexions without ill result provided the vascular sheath be left intact.

The ureter can be readily found by its relation to the internal iliac artery. Division of the infundibulo-pelvic ligament close to the brim results in the formation of a diamond-shaped gap. Gentle stroking of the exposed connective tissue with a finger converts this gap into a cavity which is bounded externally by the artery and internally

[1] A paper read before the North of England Obstetrical and Gynæcological Society at Manchester on April 17th, 1905.

usually by the ureter. If the posterior lamella of the broad ligament be hooked up by a finger placed behind it, the ureter will be found running across the palmar surface. From this point its course is mainly forward through the base of the broad ligament at a varying distance from the cervix. It may hug the latter closely or remain at a distance of one and a half inches. In nearly all cases it passes through a well-defined fibrous tunnel to the walls of which it is connected by loose cellular tissue that readily permits the ureter to be shelled out of its tunnel. Even when the broad ligament is infiltrated by cancer it is sometimes possible to turn the ureter with its vascular sheath cleanly out of a tunnel, the outer surface of which is intimately attached to the diseased tissues.

The lymphatics passing from the mucous and muscular coats of the cervix finally unite into two or three main trunks which open into one or more small glands situated in the parametric tissues close to the cervix. Each of these trunks has a diameter equal to that of the uterine artery and is provided with valves the concavity of which is directed outwards. Under pressure these valves become incompetent. After passing through the parametric glands the main lymphatic trunks are joined by the lymphatics from the upper part of the vagina. They then accompany the uterine artery until they terminate in the glands lying along the internal iliac artery. The largest gland lies in the bifurcation of the common iliac and one or more are situated beneath it, whilst below these, in close relationship to the branches of the internal iliac artery, lies the gland which receives the lymph channels from the middle portion of the vagina which course upwards with the vaginal artery. Sometimes a gland is found near the origin of this set of vessels in close relation to the recto-vaginal septum. The cervical lymphatics communicate with the gland lying immediately beneath the entrance to the obturator canal and also with the sacral glands which lie on the antero-lateral aspect of the sacrum. Unless enlargement of these glands exists recognition by vaginal, rectal, or abdominal palpation is not possible. Enlargement of a gland does not necessarily imply that it is cancerous, whilst a cancerous gland is not necessarily enlarged. A notable point is that in quite a number of cases no glands are to be found, normal or otherwise. Döderlein, for example, was unable to find glands in eight out of 26 cases. In my own cases careful search failed to reveal them in four out of ten cases. On the other hand, Wertheim found glands in every one of 80 cases.

Opportunity may be taken at this point to mention that recent investigations have shown that cancerous extension may take place along the lymphatics of the branches of the sacral plexus of nerves. Cancer cells have been found invading peri-, epi-, and endo-neuria, in some cases only fortunately, otherwise operative interference in cancer of the cervix would be wellnigh hopeless.

The abdomen is opened by an incision extending from the pubes to the umbilicus and the patient is placed in the Trendelenburg position, without the aid of which the operation would be impossible. All free intestine is cleared out of the pelvis and retained in the upper part of the abdomen by careful packing with a sterilised towel or pad. Visual and digital exploration of the pelvic organs follows. It is especially advisable to examine carefully the cervico-vesical septum, the utero-sacral folds, and the regions which the pelvic glands occupy. The first is of greatest importance, as while slight involvement merely modifies the procedure somewhat a greater degree would call for abandonment of the operation.

As a rule, the mobility of the uterus proves greater than appears to be the case bimanually and when the assistant makes traction upon it by means of a pair of Museaux forceps the infundibulo-pelvic and round ligaments are in turn readily made tense. With this help each of these ligaments is secured by double ligatures placed as close to the pelvic brim as possible and the portions lying between the ligatures are divided with scissors. The four gaps thus created are connected by division of the intervening peritoneal areas, the incision which passes from one round ligament to its fellow coursing along the bottom of the utero-vesical pouch. The cut peritoneal edges retract inwards and outwards, leaving exposed the lateral and anterior borders of the parametric tissues. The uterus being drawn upwards and backwards, separation of the bladder from the cervix and vagina is effected with the finger. The uterus is then drawn forwards and attention is directed to the ureters. Generally, the left ureter is first exposed and separated from the internal iliac artery and the connective tissues on its outer aspect; this allows the ureter to be drawn gently inwards. The internal iliac artery is dissected bare of investing tissues and ligatured about its middle. The same steps are carried out on the opposite side, so that under ordinary conditions it is now possible to work freely in the pelvic connective tissues with the minimum of bleeding. Whether one proceeds on the right side or the left is a matter of indifference; I generally select the left.

The left ureter is traced forwards, care being taken not to separate it from the posterior lamella of the broad ligament until it actually turns forward in earnest. With the help of two pairs of dissecting forceps the ureter is shelled out of its tunnel, the peritoneum of the broad ligament being pushed inwards during the process and the connective tissues being torn through in a direction upwards and outwards, so that when the point of entry into the bladder wall is reached the ureter can be simply lifted up and carried out to the pelvic brim. This cannot be satisfactorily done until the parametric tissues have been dissected off the walls of the pelvis and bladder. Beginning on the pelvic wall, partly with the finger, partly with dissecting forceps, the tissues are peeled and scraped off. Theoretically, the aim is absolutely to denude the pelvic fascia; practically, one gets away as much as possible. Sometimes an enlarged obturator gland is encountered; occasionally a branch of the uterine artery is wounded and spouts, despite the ligature of the parent trunk. As the dissection passes more deeply the uterine artery is again encountered, lying close to the pelvic wall, and for safety it is ligatured close to its origin before being divided and swept inwards with the connective tissues. These are being steadily heaped up around the uterus and they are added to by separation of the broad ligament tissues from the bladder. The finger can now be pushed deeply down beneath the parametrium till it lies on the vagina which in its turn is freely separated. These procedures are repeated on the right side and at their termination both ureters are free, the anterior and lateral parametric tissues have been freed and swept inwards, and the interior and lateral aspects of the vagina for its superior half are free. A semicircular incision through the peritoneum is now made across the bottom of the pouch of Douglas, extending from the right to the left infundibulo-pelvic ligament. Through this the posterior wall of the vagina is separated from the rectum and the tissues in the utero-sacral folds are dislodged and added to the central mass. The uterus is now quite free and can be pushed down the vaginal tube until the upper half of the latter is inverted within the lower. The abdominal wound is temporarily closed and the patient placed in the lithotomy position. The cervix, grasped by a pair of volsella, is drawn down until the vagina is almost completely inverted. The vaginal wall is carefully cleansed and then cut through by a circular sweep of the knife. It only remains to pull out the uterus and push a temporary pad of gauze in the reinverted vagina. The Trendelenburg position is resumed, the abdominal wound reopened, and all available peritoneum is used to cover over raw surfaces. If possible the ureters are secured to the lateral pelvic walls by peritoneal flaps, but, as a rule, pressure of the light gauze pack with which the pelvic cavity is filled is sufficient to effect this. The lower end of the pack is brought out per vaginam, the intestines are rearranged, and the abdomen is finally closed.

It should be mentioned that in the first eight cases the vagina was divided from the abdomen. This method, however, seems to carry with it the risks of septic infection and of cancerous inoculation of sound tissues. With the combined method the chances of either occurring are much diminished. No forceps, however powerful, seem to be strong enough to clamp satisfactorily the vagina before dividing it from the abdomen.

CASE 1.—The patient, married, aged 49 years, who had been attended by Mr. W. J. R. Dunn, was admitted to the Hospital for Women on June 6th, 1903. She had been married 26 years. She had had one child and three abortions; the menopause occurred at 41 years of age. The duration of the symptoms was seven months; at their onset the patient consulted a medical man who did not make an examination but suggested that she "should go home and prepare to die"—advice which certainly offers ground for reflection. Later she consulted Mr. Dunn who sent her into hospital. The local conditions were as follows. The cervix was excavated and the mobility of the uterus was diminished.

There was some infiltration of the right broad ligament but none in the utero-sacral folds. Under anæsthesia the mobility of the uterus was found to be considerably greater than at first seemed the case.

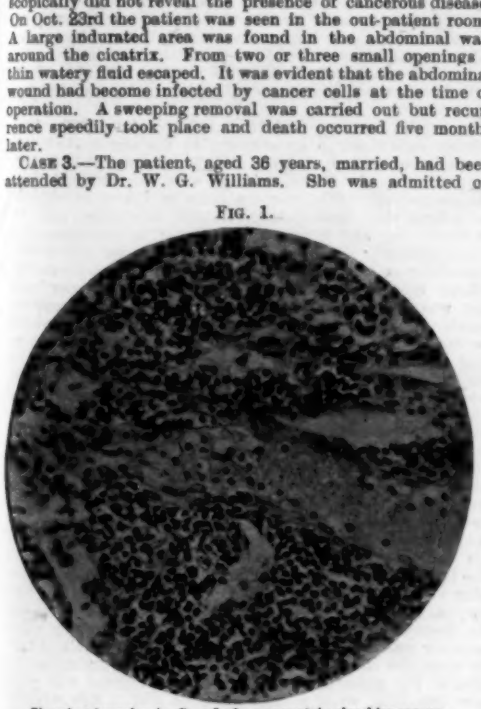
Operation was performed on June 9th, 1903. The ureters were traced forward without previous examination of the cervico-vesical septum—a tactical error. The tunnel of the right ureter passed through the growth in the right broad ligament and its outer surface was involved by it; the ureter, however, shelled out easily. The left was cleared without any sign of disease being found. The bladder was firmly united to the cervix by the growth. As much as possible was scraped off, as at that time I did not feel justified in excising the part of the vesical wall involved. No glands of any kind could be found. Recovery was uninterrupted. The patient was discharged at her own request on the fourteenth day.

CASE 2.—The patient, married, aged 44 years, was admitted to hospital on June 20th, 1903. She had been married 16 years. She had had four children and two abortions. The duration of the symptoms was six months. The local conditions were as follows. The cervix was enlarged, indurated, and irregular; it bled freely on touch. The uterus was freely moveable.

Operation was performed on June 23rd, 1903. Both in this and the preceding case the operation was entirely abdominal, the vagina being clamped between two large pairs of compression forceps before division. No trouble was experienced with the ureters. The anterior vaginal wall was sewn to the peritoneum of the bladder; this was found afterwards to limit the capacity of the bladder. Three right and one left iliac glands were found and removed; in size all were apparently normal. The lower end of the abdominal wound suppurated but speedily recovered. On the sixteenth day urine escaped per vaginam. Examination disclosed a small opening on the left of the vaginal apex. The incontinence gradually ceased and had disappeared at the end of six weeks. No evidence of enlargement of the left kidney was discovered at any time. Examination of the glands microscopically did not reveal the presence of cancerous disease. On Oct. 23rd the patient was seen in the out-patient room. A large indurated area was found in the abdominal wall around the cicatrix. From two or three small openings a thin watery fluid escaped. It was evident that the abdominal wound had become infected by cancer cells at the time of operation. A sweeping removal was carried out but recurrence speedily took place and death occurred five months later.

CASE 3.—The patient, aged 36 years, married, had been attended by Dr. W. G. Williams. She was admitted on July 6th, 1903. She had been married 14 years. She had had two children and six abortions. The duration of the symptoms was two years. She was seen a year previously by a well-known gynæcologist who considered that the disease was too extensive for any radical operation. A palliative operation was performed and for some months the patient was much relieved of her symptoms and gained in weight. Gradually the bleeding came on again and the patient sought further relief. The local conditions were as follows. The cervix was represented by an irregular thick mass with a dirty sloughing surface which bled on touch; friability was marked. The vaginal walls were not involved; induration was felt along the bases of both broad ligaments. The mobility of the uterus itself was surprising and it was this circumstance that determined me in giving the patient another chance.

FIG. 1.



Showing invasion in Case 3 of a parametric gland by cancer. × 250 (nearly).

Operation was performed on July 11th. As a preliminary step the cervix was separated from the bladder and as it peeled off freely the operation was proceeded with. The ureters were dissected out with some little difficulty on account of the extreme depth of the pelvis. The thickened right parametrium showed no signs of malignant infiltration and the left was not even indurated. Small iliac glands were removed from both sides. After the usual gauze pack had been placed the sigmoid colon and its mesentery were carefully arranged so as to roof it in. Examination of the glands established the presence of cancer in the right iliac glands. Uninterrupted recovery followed and the patient remained in excellent health without sign of recurrence until June, 1904. She had reported herself regularly every month until that time and although requested to continue doing so she became over-confident and did not reappear until August, when it was ascertained that wide recurrence had taken place at the top of the vaginal canal. Examination under anæsthesia was made and showed such extensive disease that further interference was out of the question.

CASE 4.—The patient, aged 53 years, married, had been attended by Mr. J. Singleton of Kendal. She was admitted on Sept. 10th, 1903. She had been married 20 years but had never been pregnant. The menopause came on at the age of 38 years. The local conditions were as follows. The cervix was small and irregular; the anterior lip was ulcerated and bled on touch. A piece of tissue was removed and examined microscopically; it proved to be squamous-celled carcinoma.

Operation was performed on Sept. 22nd. The omentum was adherent to the anterior half of the pelvic brim. The left appendages were adherent to the floor of the pelvis; these were freed with difficulty. The body of the uterus was small and soft; when grasped with the volsella pus gushed out through a tear caused by the teeth of the forceps. At this stage the disadvantages caused by a layer of abdominal fat, two inches in thickness, and by a very deep pelvic cavity impressed themselves forcibly on me. The difficulty was increased by the impossibility of drawing the uterus up, on account of infiltration at the base of the left broad ligament. The patient took the anæsthetic badly and strained a good deal. This was the first case in which an internal iliac artery was ligatured. The left artery was doubly ligatured and divided between the ligatures; the right could not be satisfactorily exposed, and the uterine artery was therefore ligatured at its origin. The infiltration of the left broad ligament was continued into the utero-sacral fold of the same side and during the clearing out of the latter free venous bleeding occurred, easily checked, however, by pressure. Adrenalin chloride solution was applied to make certain that it was permanently stopped. There was no difficulty in freeing the ureters, bladder, and connective tissues. No glands were to be found. The patient's condition was now a serious one. The ureters were dealt with as usual and, be it noted, they were quite intact. The abdomen was then quickly closed. The after-condition was never satisfactory, although the patient rallied well. She did not sleep, she talked incessantly, and passed very little urine. During the first 48 hours only four ounces were voided, but this amount gradually increased during the following three days. In spite of this the condition steadily grew worse, nothing gave sleep, and the patient slowly sank and died, presumably from sepsis.

CASE 5.—The patient, aged 35 years, married, had been attended by Mr. T. H. Summerhill of Rhyl; she was admitted on Oct. 14th, 1903. The duration of the symptoms was four months. The local conditions were as follows. The cervix was excavated; there was infiltration of the anterior wall which apparently involved the bladder. The body of the uterus was only slightly moveable. The left broad ligament was thickened and fixed. The patient was kept in bed for

a week, during which time hot douches and glycerine pledgets were employed. At the end of the week the mobility of the uterus had considerably increased, so I decided to explore the condition of matters.

Operation was performed on Oct. 20th. The peritoneum at the bottom of the utero-vesical pouch was puckered and adherent to the underlying growth. Both internal iliac arteries were ligatured. The right ureter was freed without trouble; the left was shelled out of a mass of carcinoma in the left broad ligament. As a matter of fact, the tunnel only was adherent to the growth, the loose tissue surrounding the ureter itself being apparently unaffected and the ureter when freed was seen to be covered by a thin layer of fat in which the ramifying vessels were distictly visible. To ascertain the extent of bladder involvement an opening was made in the viscus and its cavity was explored by the finger. The infiltration was too widespread to justify any resection of the bladder, so the wound was closed. All disease that could be cut and scraped away was removed and after the usual peritoneal stitching the abdomen was closed. No glands were found. Recovery was normal. The patient was discharged on Nov. 14th, healing being complete except for the small crateriform ulcer at the summit of the vagina. The disease steadily advanced, metastases formed in the liver, and death took place on Jan. 25th, 1904.

CASE 6.—The patient, aged 50 years, married, had been attended by Dr. J. D. R. Munro of Nantwich. She had been married 20 years. She had had eight children and two abortions. The duration of the symptoms was four and a half months. The local conditions were as follows. The cervix was indurated; the os admitted the tip of the forefinger which passed into an irregular excavated cavity. There was some induration on the left of the uterus. The uterus was perfectly moveable.

Operation was performed on Nov. 7th. Both internal iliac arteries were ligatured. The ureters and bladder were freed. The vagina was divided with a knife, the upper

FIG. 2.

Section in Case 6 of cancerous obturator gland of the right side. × 45 (nearly).

end being guarded with a gauze pad and the whole being lifted out together. A gauze pack was placed in the lower vaginal end. A large mass of glandular tissues was found immediately below the right obturator canal. A few small glands in a similar position were found on the left side. None were discovered along the iliac vessels of either side, although one was found in the base of the right broad ligament. Recovery was normal. This patient is still alive and well. The right obturator gland was found to be invaded by cancer.

CASE 7.—The patient, aged 55 years, under the care of Dr. R. Lucius Wood of Huyton, was admitted on Nov. 16th, 1903. She had been married for 35 years, had had 13 children, and had aborted twice. The menopause occurred at 44 years of age. The symptoms had lasted for three or four months. She had lost much blood and looked blanched. The cervix was excavated and the uterus was moveable. She was operated upon on Nov. 21st, 1903.

The case is an example of the difficulty that may be encountered during the performance of this operation. The general condition of the patient was bad; the subcutaneous fat was dirty looking, œdematous, and friable; and the rectus muscle resembled the pale muscle of the rabbit. The preliminary steps were carried out in the usual manner, and then occurred trouble with the anæsthetic. The patient took both chloroform and ether badly, fluid collected in the trachea, and cyanosis became marked. After some improvement the pelvic connective tissues were opened up and then the venous plexuses in the broad ligaments were seen to be enormously congested. Veins one centimetre in diameter twined and twisted in great bunches and concealed only too effectually the underlying ureters and vessels. After some manipulation the left internal iliac artery was found and tied, but during the tracing forward of the ureter one of these veins was wounded. The pelvis was immediately flooded with blood but the bleeding was checked by packing with a sterilised towel. Its withdrawal was followed by similar alarming hæmorrhage and it was only at the slow and careful removal of the pack for the third time that the bleeding point was secured. The large veins had now collapsed and the freeing of the ureter was accomplished. Rather than risk a similar occurrence on the right side I contented myself with ligaturing down the broad ligament, removed the uterus, and sent the patient back to bed as rapidly as possible. She was very much collapsed, never rallied, and died in 18 hours.

CASE 8.—The patient, aged 48 years, who had been under the care of Dr. A. MacLennan of Runcorn, was admitted on Nov. 20th, 1903. She had been married for six years and had had two children. The menopause had occurred at 44 years of age. The symptoms had lasted for four and a half months. The cervix was excavated; the uterus was slightly moveable laterally, but it could not be drawn down to the vaginal ostium. After a week's rest and treatment the mobility of the uterus was found to be increased, but there was now felt clearly a large mass in the right broad ligament. This case was not one in which vaginal hysterectomy could be carried out, but I decided to attempt the abdominal operation as the patient was very anxious to have something done.

The operation was performed on Dec. 1st, 1903. The bladder was found to be adherent to the cervix, but the connexion was tough, suggesting inflammatory rather than malignant tissue. After dealing with the internal iliac arteries and the left ureter the mass on the right side of the uterus was investigated. Its size was about that of a bantam's egg and it was firmly attached to the uterus and to the bladder. The right ureter dived into its centre and careful dissection was required to free it. After tedious and difficult work, involving much handling of the ureter, that tube was cleared, but unfortunately minus its nutritive vessels. Next, the muscular wall of the bladder to which the malignant lump adhered was stripped off the underlying mucous membrane of the bladder and cut away. The mucous membrane bulged, thinned, and threatened to burst under the pressure of the little urine in the bladder, but the catastrophe was averted by the immediate use of the catheter. The healthy edges of bladder muscle were then sutured together. Shortly afterwards, in drawing the fundus uteri to the left, a loud crack was heard, caused by a split between body and cervix. The opening rapidly increased but no discharge was allowed to ooze up. However, the uterus and most of the cervix soon broke off, leaving the right-sided mass still attached to the vagina. The removal of this concluded a long operation. No glands were found. The recovery was uneventful until the seventh day, when urine escaped from the vagina. On Jan. 4th, 1904, two sloughs were found lying in the upper end of the vagina. One resembled a piece of tube laid open along its long axis; the other was indefinite in shape. It was ascertained that the urine was coming down a funnel-shaped opening on the right of the upper end of the vagina. Progress was good until the 27th, when a rigor occurred with a temperature of 103·8° F., and pus was found in the urine. The disturbance passed off and the patient returned home on Feb. 3rd, urine still being passed per vaginam. The incontinence ceased a few weeks after the patient's return home. The general health was fair until the beginning of June,

1904, when all the symptoms suggestive of recurrence appeared and the patient gradually sank.

CASE 9.—The patient, aged 54 years, was admitted on May 27th, 1904. She had been married for 18 years but had never been pregnant. The menopause occurred at 49 years of age. The symptoms had been of three months' duration. The following were the local conditions: the cervix was excavated; there was marked induration in the left broad ligament interfering considerably with the mobility of the uterus; the utero-sacral folds were apparently free. On May 28th the cervical ulcer was curetted, after which a 60 per cent. solution of zinc chloride was applied.

On June 7th operation was proceeded with. The left side of the bladder was adherent to, and dragged backwards by, the sigmoid colon and there were numerous omental adhesions to the bladder. After these had been dealt with and the pelvis emptied of intestine it could be seen that there were large deposits of fat in the pelvic connective tissues. As usual, the mass in the left broad ligament was much larger than had previously appeared; it was adherent to the bladder and involved the utero-vesical septum. The right ureter was dealt with but as I wished to run no risks with it the uterine artery alone was tied. The left internal iliac was then ligatured, a mass of enlarged glands cleared out, and an attempt made to expose the ureter. This was very difficult and ultimately part of it had to be traced from its anterior end. The whole of the posterior wall of the bladder was resected with the exception of two tongues carrying the ureteral openings and the bladder wound was sutured with

FIG. 3.

Section in Case 9 of cancerous left iliac gland, showing degenerating lymphoid tissue surrounded by cancer cells. × 45 (nearly).

catgut. The remaining attachments of the uterus were freed, the vagina was separated, and removal was carried out per vaginam. To do this incision of the vagina was necessary. The operation was concluded in the usual way and a drainage-tube was placed in the bladder. The patient recovered steadily, but on the sixteenth day urine escaped per vaginam. The bladder remained quite sound, but it has been ascertained that the left ureter sloughed; the result has been that a uretero-vaginal fistula has formed. Two attempts have been made to close it, but a small opening still exists in place of one that easily admitted the finger-tip. This patient is still alive and well. The left iliac glands were extensively involved by cancer.

CASE 10.—The patient, aged 43 years, was admitted on Jan. 7th, 1905. She had been married 25 years and had had 13 children. The duration of the symptoms was eight months. The local conditions were as follows. The cervix was excavated and the uterus was freely moveable; no extension beyond it could be discovered.

The operation was carried out on Jan. 14th. The pelvic connective tissues appeared to be quite free from disease and as there was but little oozing of blood the internal iliacs were not tied. With this exception the procedure did not vary from the description given above. The uterine arteries were ligatured at their origins and a large vesical artery required tying on the left side. On the left iliac vessels a large gland measuring one and a half inches in length by half an inch in thickness was removed. A small one lay along the right artery. Search for others

FIG. 4.

Section in Case 10 of cancerous left iliac gland. × 250 (nearly).

was futile. This operation was by far the most easy of the whole ten but most unfortunately the patient died from sepsis on the sixth day. At the necropsy general peritonitis was found.

Of the ten operations three were incomplete, one because the patient's condition necessitated speedy termination of the operation and two because of extension of the disease to the bladder wall. It has been borne in upon me that ruthless excision is necessary for the success of this operation. Involvement of the bladder implies either abandonment of the operation or free removal of the affected area. Involvement of the ureters in a cancerous broad ligament calls for resection with fresh implantation into the bladder.

With regard to the pelvic connective tissues any attempt to remove them cleanly must necessarily be out of the question. Even in lean individuals a surprising quantity of fatty tissue is found beneath the pelvic peritoneum and complete removal of it is a task better suited for the dissecting rather than the operating room. In most cases I was struck by the small amount of tissue contained in the utero-sacral folds; in no instance was anything resembling a gland turned out of them, nor could any sacral glands be discovered. Perhaps this is not surprising, since in no single one of the cases was any induration behind the uterus detected previously to operation. In this connexion it is interesting to bear in mind the dictum of Wertheim: "Infiltration does not necessarily imply carcinoma, nor does a soft condition exclude it."

The modes of advance of cancer are either by direct continuation of growth from the cervix into the parametrium, or, the cervix being surrounded by intact connective tissues, the metastases are found principally in the glands, or there may be a combination of both these modes. Kundrat has investigated the condition of the parametrium by serial section cutting in 80 cases and he found it was affected in 55 per cent. of them: on one side only in 23·75 per cent., on both in 31·25 per cent. In 22 cases the parametrium alone was diseased, the glands being normal; in eight the parametrium was uninvolved, whilst the glands were diseased. In a number of cases in which the parametrium was indurated no sign of cancer could be detected and, inversely, disease was discovered in soft parametria. As causes of non-cancerous infiltration Kundrat suggests changes in the vessels—proliferation of the intima, closure of the lumen, and thrombosis—which probably have some relation to the new growth. The accompanying exudation and

infiltration of the surrounding tissues lead to stiffening and induration. Under treatment this diminishes, hence the increase noted in the mobility of the uterus. The improvement following the use of Doyen's serum has been ascribed to a similar effect.

The pelvic glands.—In four cases (Nos. 1, 4, 5, and 8) no glands could be found, despite a thorough search for them. Dr. J. H. Willett, who assisted me, bears me out in this. In Case 7 the operation was abandoned and the glands were not sought for. In the remaining five cases iliac glands were found on both sides in three (Cases 2, 3, and 10) and on one side in one (Case 9). In Case 6 the obturator glands on both sides were enlarged.

Microscopical examination has resulted as follows:—Case 2: no disease found on either side. Case 3: Right iliac glands cancerous. Case 9: Left iliac glands cancerous. Case 10: left iliac glands cancerous. Case 6: right obturator glands cancerous. Out of ten cases the glands were found to be cancerous in four—i.e., 40 per cent. It should be stated that sections of these glands were not taken by the serial method—the only trustworthy one—but merely from parts of the glands which appeared suspicious. Possibly, therefore, further investigation of Case 2 might result in the finding of diseased areas. Wertheim estimated that the glands were diseased in 35 per cent. of cases and his figures have been confirmed by Döderlein, Zweifel, and Kleinhaus. Von Rosthorn puts his figures as high as 57·5 per cent., while those of an American observer (Wakefield) are only from 25 to 30 per cent. Wertheim states that of 35 cases in 100 two-thirds show cancer cells arranged in alveoli. In the remaining third there was no alveolar arrangement, but instead tube or bag-shaped formations, lined by high cylindrical epithelium, often possessing cilia. He was inclined to believe that these appearances were to be regarded as having a connexion with carcinoma of the cervix until Meyer of Berlin found similar changes in the pelvic glands of patients who had died from eclampsia or peritonitis. Since this Wertheim has found the same appearances in glands from a patient whose death was attributed to multiple pelvic abscesses. His figures therefore require considerable modification.

Of my own cases, the most striking instances are Cases 6 and 10. Both were typical examples of cases suitable for vaginal hysterectomy. The disease appeared to be limited entirely to the cervix and the mobility of the uterus was normal in each case. Yet in Case 6 the right obturator gland was cancerous and from Case 10 was removed the largest cancerous gland I have yet seen. In both these cases the performance of vaginal hysterectomy would have been futile so far as eradication of the disease was concerned. Improvement succeeding removal of the primary growth would speedily have vanished as the secondary untouched focus advanced. Extirpation of cancerous glands is no guarantee that all disease has been eliminated. Experience may show that the presence of infected glands should be a contra-indication to radical operations, but in the present state of knowledge a "radical" operation, to deserve its title, should include removal of all possible areas which are commonly diseased. In four other cases (Nos. 2, 3, 4, and 7) the local conditions were such that vaginal hysterectomy would unhesitatingly have been performed. In only one of these the glands were found involved by cancer, so that out of six cases in which vaginal hysterectomy would ordinarily have been selected as the operation of choice the pelvic glands were cancerous in three. There were four cases (Nos. 1, 5, 8, and 9) in which the vaginal operation could not possibly have sufficed. Its performance would probably have been attempted in Case 1, but in the other three the interference with uterine mobility was too great even to justify the attempt. In three of these cases no glands were to be found at the operation (Nos. 1, 5, and 8).

Ligature of the internal iliac arteries produced no after-effects at all beyond some temporary lividity of the skin area supplied by its branches. That it is not without its risks is shown by the case recorded by Cullen in which there occurred gangrene of the leg necessitating amputation. In the same case it was noted later that "it appeared as if all the pelvic organs were sloughing away." Ligature of the artery is invaluable in some cases, absolutely checking the oozing of blood which obscures the field of a difficult operation and which thereby increases both its duration and its risks. After the ligature has been tightened the veins seem to collapse entirely; they were never tied for the reason that they were never seen. The only cases in which hæmorrhage was severe were those two (Nos. 4 and 7) in which venous plexuses were wounded. The bleeding in Case 7 was alarmingly free but it was readily checked by pressure, as in a similar case related by Cullen.

Mortality.—Three deaths occurred out of ten cases, a rate of 30 per cent. It is scarcely necessary to recall the heavy mortality which led to the abandonment of Freund's operation—one of 76 per cent. Since 1895 this percentage has been steadily diminishing. Between 1900 and 1902 Wertheim operated on 31 cases with six deaths—18·2 per cent. Jonnesco's first series of ten cases had a mortality of 30 per cent.; his second series of 60 per cent.; and of the third series of ten cases every patient recovered. As he remarks, there seems to be a direct relation between the mortality on the one hand and experience in selecting cases and acquired operative skill on the other. This is perhaps, at present, the keynote of the matter. The operation, radical as it is and dangerous as it may be, requires that only selected cases be submitted to it—cases in which there is the possibility of removing the diseased uterus surrounded by a clear zone of sound, or apparently sound, tissues. Further desiderata are absence of much fat on the abdominal wall, a fairly roomy pelvis, and a good general condition of health. The anatomical position and relations of the mamma and of the uterus differ too much to render any comparison between them of great value but there is a striking similarity between the histories of the surgical progress in the treatment of the cancerous affections of each. First, removal of part, then of the entire organ; finally the organ *plus* its surrounding tissues, lymphatics, and glands. Extensive operations for cancer of the breast are practised now with but trifling mortality and are followed by more prolonged periods of subsequent immunity than were known in the past. Lessened mortality is largely due to modern asepsis but prolongation of immunity can only be due to freer excision. What has proved of value in the case of the cancerous mamma can at least be tried for the cancerous cervix uteri. Whilst routine removal by the vaginal operation ignores the possibility of outlying disease the results can only be disappointing. Is it not time to face the facts, to recognise that in every 100 cases submitted to vaginal hysterectomy diseased areas remain untouched in at least a fourth of the number? Surely the procedure is only palliative in these cases, and as such should be limited in its applications.

It is possible that the clearing up of the mystery surrounding the etiology and pathology of cancer may establish a rational basis for treatment. It is also possible that the abdominal operation may prove to be inadequate. In the meantime my inclination is to regard the combined radical operation as the one which seems to offer a reasonable chance of success, provided that its application be restricted to suitable cases.

Liverpool.

FIVE FATAL CASES OF ACUTE MENTAL DISORDER, PROBABLY ACUTE DELIRIUM.

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THE following cases appear to me to be worth recording on account of their rarity and severity, their rapid and lethal course, the obscurity of their pathogenesis, and, in three of them, the comparative insignificance of the naked-eye cerebral changes. As regards rarity, I find but five instances in a series of 451 necropsies, and undoubtedly the very great majority of such cases come to necropsy. Having regard to our ignorance of the nature of the disorder which these cases illustrate, I am of opinion that all such should be brought forward with a view to stimulate inquiry. The notes in these cases are not so full as could be wished, for reasons beyond my control; nevertheless, they serve to give a fairly good picture of the conditions observed. In the record of post-mortem appearances only positive (morbid) conditions are noted for reason of space.

CASE 1.—The patient was a married woman, aged 43 years. This was her first attack and she was admitted

to the asylum on May 21st, 1902. The family history, as given, was normal as regarded nervous disorders except that one sister suffered from "fits." The personal history was also normal. The patient had been healthy in mind and body until she got a severe attack of influenza at the close of December, 1901. Since that time she had not been quite well but was able to do her work up to a date two months prior to admission. No cause for the present attack was known apart from influenza. During the two months preceding admission she was low-spirited, lacrymose, and hypochondriacal. Recently she had been maniacal, with the usual symptoms. The following is a summary of the medical certificate of admission: "Lying in bed, shouting and muttering incoherently; mistakes of identity; some exaltation; insomnia; refusal of food, saying same was poisoned." On admission the patient was restless, resistive, hostile, and destructive; she was filthy in habits, noisy, unconscious of time and place, had delusions of persecution, hallucinations of vision, mistakes of identity, and much exaltation. Physically she was well nourished and powerful. Her face, hands, and feet were very cyanosed. The pulse was 88, the respirations were 16, and there was aortic regurgitation. There was tremor of the lips, the tongue, and the hands. Speech was tremulous. The pupils were equal and of normal contour; there was no reaction to light and they were sluggish to accommodation. There were nebulæ about both corneæ. The knee-jerks were exaggerated. She was certified five days after admission by me as being in a state of "acute dementia, muttering unintelligibly, lying on the floor, moving constantly and aimlessly, resisting strongly, filthy in habits, destructive, refusing food. Physically well nourished and strong." The further history was as follows. She continued noisy, restless, and resistive. Sordes appeared on the lips. The day before death there were moist sounds over the lungs; the pulse was quick and irregular; the temperature was not raised. She died on May 29th (eight days after admission).

Necropsy.—A post-mortem examination was held the next morning. The only morbid appearances were as follows. The dura mater was adherent to the skull cap in front; there was slight opacity of the pia arachnoid over the sulci. The left ventricle was hypertrophied, the myocardium was friable, and the aortic valves were thickened and atheromatous. The pharynx and trachea were very congested. The liver showed old nutmeg change. Nothing else abnormal was noted in the brain or elsewhere. The weight of the brain was (probably before stripping and unopened, but not stated) 48 ounces; the grey and white matter was of good consistence. The tangential fibres of the outermost layer of the cortex cerebri were found to be degenerated. A blood-serum tube inoculated with blood from the heart showed growth on the third day. A subculture from this tube was pronounced by Dr. D. N. Nabarro to be pure growth of the bacillus diphtheriæ.[1]

CASE 2.—The patient was a single man, aged 21 years. It was his first attack and he was admitted to the asylum on Feb. 21st, 1905. The family history was as follows. The mother was epileptic and her father was "peculiar"; nothing further abnormal was ascertained. The patient's personal history was good. The present illness dated back to a recent attack of influenza. The present attack was of about one month's duration; the acuter phase had lasted one week. He had taken food badly; sleep was deficient; he had constipation, increasing incoherence, with hallucinations, and restlessness. The following is a summary of his medical certificate of admission: "Not a moment quiet; appears not to understand; takes no notice; incessant incoherent talk; refusal of food; insomnia." On admission his temperature was 101° F. (thereafter it became normal, but on March 3rd it rose to 100·2° and remained at between 99° and 100° until the morning of death when it was 101°). There was great physical reduction; the tongue was coated and tremulous; there was marked constipation (great difficulty was experienced in overcoming this); and there were considerable rigidity and expression of pain on pressing the muscles. The knee-jerks were exaggerated. As regards mind, his attention could not be gained and he gave no indication of understanding, was unintelligible, and muttered unceasingly. He lay recumbent but was most restless and resistive. He could not control his emunctories. He was fed with great trouble. He was sleepless and appeared to be in pain. He got rapidly worse despite all treatment; he looked exceedingly ill and emaciated; the pulse became feeble; there was increasing dyspnœa (there were a few râles at the bases of the lungs); he was sleepless and in constant motion. Death occurred on March 6th (13 days after admission, about six weeks after the illness was first noted).

Necropsy.—A post-mortem examination was made 41 hours after death. The only positive indications of disease were as follows. The dura mater was rather adherent to the skull; the leptomeninges were congested and the cerebral cortex was markedly so. The brain substance was softened. The weight of the brain (probably with soft membranes and before opening, though not stated) was 54 ounces. The lower lobes of both lungs were congested and there was a small recent pleuritic patch at the base of the right lung. The liver, the spleen, and the kidneys were congested.

CASE 3.—The patient was a married man, aged 40 years. This was his first attack. He was admitted to the asylum on April 15th, 1905. The family history was as follows. One grandfather was "eccentric" and one of the patient's children died from tuberculous meningitis; nothing further abnormal could be ascertained. With regard to his personal history he drank too much at times—was "mad when in drink." The cause of the present attack (which was only of four days' duration) was great excitement during the religious revival. The following is a summary of the medical certificate of admission: "Religious mania with the usual symptoms, including refusal of food." He lived on milk-and-water for some time. On admission his temperature was subnormal (and it was not found above normal till the day of his death, when it was 100° F. in the morning). He was emaciated, pale, and greatly reduced physically. The knee-jerks were much exaggerated. The mouth was dry, the tongue was coated and tremulous, there were sordes on the teeth, and constipation was present. Mentally the patient was very agitated, restless, shouting, gesticulating, and incoherent. He continued thus, passing evacuations under him; he was fed by the tube; he was sleepless (no hypnotics were of any avail). Four days after admission he was removed to the infirmary ward owing to increasing exhaustion. He now took from the attendant four pints of milk and four eggs daily. His face was expressionless. The pulse was good. There was some dyspnœa with coarse râles at the base of the right lung. The temperature was normal. There was general muscular tremor. On the 22nd he was restless, with increasing dyspnœa. The respirations were 45, the pulse was more feeble and rapid, and the temperature was 100°. He died at noon on April 22nd (seven days after admission). For the last three or four days of life he showed no mental reaction but lay in bed taking no notice, expressionless, silent, giving no indication of understanding what was said.

Necropsy.—A post-mortem examination (for an unavoidable reason) was made 71 hours after death. The only positive indications of disease were thickening of the pia arachnoid which peeled easily in large sheets; the grey and white matter of the brain was soft on section. (These last two conditions no doubt were aggravated by length of time between death and the necropsy.) There was congestion of both lungs; the spleen was congested and friable. There was nothing further. The weight of the brain was 53 ounces (with soft membranes).

CASE 4.—The patient was a married man, aged 46 years. It was his first attack. He was admitted to the asylum on Jan. 25th, 1896. His family history was as follows. His father was intemperate and an aunt had a stroke of hemiplegia. The patient was the father of nine children, of whom five died in youth from no special disease; his wife had had two miscarriages also. With regard to his personal history he had had an attack of influenza three years before this illness but apparently made a good recovery. The present attack was of one week's duration; the supposed cause was domestic trouble. The following is a summary of the medical certificate of admission: "Violence, some ideas of exaltation, refusal of food, restlessness." On admission he was very restless and resistive, unintelligible, agitated, required feeding by the tube, stared before him, and appeared to have visual hallucinations. He was utterly confused. Physically he was well nourished; he had an ulcer on the lower third of the right leg, on the antero-internal aspect, and several small scars about the front of the right knee, also one scar on the left knee. There was nothing

[1] See THE LANCET, August 10th, 1902, p. 440.

else noteworthy except that the tongue was dry and furred. Subsequent entries note especially extreme restlessness—"rolling about the floor"; the patient was only partially conscious. He was fed by the tube and the urine was drawn off. There were sordes on the lips and teeth. He got gradually feebler. On Feb. 3rd the pulse was 90, scarcely perceptible, the temperature was 98° F., the face and lips were dusky, and respiration was rapid. There was low muttering delirium. Death took place on Feb. 4th, ten days after admission.

Necropsy.—A post-mortem examination was held on Feb. 6th at noon. The skull cap was deeply injected and the dura mater was strongly adherent to either side of the middle line. The pia-arachnoid stripped normally, there were no erosions of the cortex, and the gyri were well arranged and of good size. All parts of the brain, including the grey and white matter, were extremely congested. There was no excess of cerebro-spinal fluid. Both lungs were congested. The brain weighed 58 ounces (probably with soft membranes). Nothing else was noteworthy. There was no evidence of syphilis in the testicles or elsewhere. This case during life was regarded as possibly one of dementia paralytica but there was nothing in the post-mortem appearances to indicate this disease.

CASE 5.—The patient was a married man, aged 51 years, a hosier. It was his first attack. He was admitted to the asylum on May 13th, 1905. His family history was free from disease of any importance. With regard to his personal history, he had had influenza "this year and many times." The cause of his present illness was believed to be religious ("revival") excitement; its duration was 14 days prior to admission. The following is a summary of the medical certificate of admission: "Religious mania, sleeplessness, restlessness." On admission the patient looked at least ten years older than he was; he was feeble and greatly emaciated. No cardiac murmur was heard; his pulse was feeble (120). The tongue was coated. He was very restless and resistive and was in a dazed condition. He refused food and was fed by the tube. He was quite incoherent. He passed evacuations beneath him. He remained in this condition until death occurred at 2.15 A.M. on the 17th (four days after admission). On the 16th the morning temperature was 99·4° and the evening temperature was 100°.

Necropsy.—A post-mortem examination was held on the 18th at 1.45 P.M. Permission was given to examine the head only. Nothing abnormal was noted excepting that the pia arachnoid peeled in large sheets (not opaque), the brain tissue was soft and œdematous, and the grey matter was but little congested. The weight of the brain with soft membranes was 55 ounces. This case resembled the others clinically. The necropsy was not, however, complete, as in the previous cases.

The above cases are, I think, best placed under the heading of "acute delirium" or "acute delirious mania." In three of them the marked congestion of the meninges and cerebrum and marked softening of the latter which are recorded in descriptions of acute delirium were not present. The brain-weights were, however, increased in all, pointing to œdema. The chief clinical features of these cases are, I think, the profound disturbance of consciousness, the restlessness (a constant movement, with resistance and without violence, the patient being recumbent), and the adynamic condition. This last rapidly increases and, in my experience, treatment is commonly of no avail. I believe that subcutaneous injections of sterilised salt solution should be tried more freely in these conditions, with the object of diluting and eliminating toxin. Hitherto I have not injected more than 500 cubic centimetres subcutaneously at a time, using Hayem's solution (seven grammes of common salt to one litre of water) every other day, sometimes daily, this being the method described by Jacquin,[1] whose article first drew my attention to this treatment. Dr. Mosher of the Albany Hospital, New York,[2] injects as much as 1700 cubic centimetres twice daily. Some prefer to introduce the solution into the bowel. I am not aware that there is sufficient experience to decide which method, if either, gives the better result. The first named is certainly the more troublesome, involving disinfection of apparatus.

In two of the above cases the mental illness was dated back by the friends to an attack of influenza and in two others there was intense religious excitement, both of which are causes of acute delirium recognised by authors. The description given by the best English and foreign text-books of the condition above portrayed sufficiently demonstrates our lack of knowledge of its pathogenesis. Such descriptions commonly refer to the probability or certainty of toxæmia in acute delirium, even where the disease occurs independently of a specific malady, such as typhoid fever or pneumonia, but little or no information is forthcoming as to the nature of the toxin and as to its source beyond the statement that the latter may be exogenous or endogenous. As far as I am aware there is no record of the discovery of a specific organism in acute delirium apart from the observations of the Italian observers, Bianchi and Piccinino, who found a bacillus in the blood, an observation which is in need of ample confirmation. Cases of auto-intoxication with mental disturbance in diseases of the kidneys, the liver, the heart (cyanosis), and other organs have been described[4] and the gastro-intestinal tract is commonly regarded and perhaps somewhat too familiarly referred to as a source of endogenous toxins, on which theory the stomach has been washed out and the intestines have been freely treated with such drugs as naphthalene with a view to disinfection, in the feasibility of which, as regards the bowel, I disbelieve. There is another form of auto-intoxication to which Mott has called attention[5] and which consists in poisoning by the products of metabolism of nerve substance, such as choline. Choline, it appears from the source referred to, does not normally exist in the blood in sufficient quantities to be recognisable but can be detected in the blood "practically in any degenerative process affecting the nervous system if extensive enough." Its escape into the blood in large quantities and its accumulation therein may cause auto-intoxication. As, however, choline is not a powerful toxic substance (Mott found it in abundance in a case of disseminated sclerosis, which is certainly not a type of acute toxic disease) it would appear improbable that this substance could produce such a rapid and fatal disease as acute delirium. But other products of the decomposition of the proteid matter of the nervous system may be more active poisons.

In diseases caused by exogenous toxins, such as the infectious fevers, there is as a rule a decided rise of temperature, whereas in cases of acute delirium the temperature is often but slightly raised, sometimes not at all. This point, together with the consideration that the latter disease is sometimes referable to a psychical cause with attendant physical reduction, would rather indicate that it is of the nature of an auto-intoxication. I consider that such cases as the above constitute one of many arguments for the establishment of a psychiatric department in connexion with our great teaching hospitals. For the conditions necessary for research in the more obscure fields of psychological medicine, which conditions include proper facilities for animal experimentation and for collaboration with workers in allied departments of medical science, are not to be found, and in my belief will never be established, in county asylums in this country.

Carmarthen.

[1] Annales Médico-Psychologiques, May-June, 1900: Du Serum Artificiel en Psychiatrie.

[2] Third Report of the Department for Mental Disease, Albany Hospital, 1905.

[4] As, for example, by Jacobson, "Ueber Auto-Intoxications-Psychosen," Allgemeine Zeitschrift für Psychiatrie, Band li., Heft 2.

[5] Croonian Lectures, On the Degeneration of the Neurone 1900. Also Mott and Halliburton in Philosophical Transactions of the Royal Society.

[1] Albuminuric Retinitis, by L. Webster Fox, A.M., M.D. New York Medical Journal, June 25th, 1904.

THE DURATION OF LIFE AFTER THE APPEARANCE OF ALBUMINURIC RETINITIS.

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THE prognostic significance of albuminuric retinitis may well be regarded as a subject of considerable importance. Retinitis occurs in about 30 per cent. of all cases of Bright's disease. "This percentage is subjected to very slight variation by different observers. For instance, Norris stated that 25 per cent. of cases of nephritis were attended by retinal changes; Eales demonstrated by his statistics that its frequency was 28 per cent.; while Galezowski places it at 33 per cent. It seems to be more frequent in males than in females."[1]

A good deal of information has been collected during the last few years showing that when retinal changes are present an indication is given of the serious condition of the kidney disease and that life will only be, in the majority of cases, a question of months. Dr. Miles Miley, in a paper before the Ophthalmological Society in 1887, related particulars of an examination of in-patients he had conducted at the London Hospital. He was able to trace the duration of life in 45 cases and ascertained that death ensued in under one month in 13 cases; under two in seven cases; under three in six cases; under four in one case; under five in six cases; under six in four cases; under seven in one case; under eight in two cases; under nine in one case; under 11 in one case; under 14 in two cases; and under 18 in one case. One lived nearly 18 months and two 14 months, all the rest dying before the year was out. The average duration of life in these cases was four months.

At the same time that Dr. Miley's paper was read I contributed a short one to the discussion in which reference was made to eight cases. I shall allude to these instances when, later, I deal with those more particularly treated of in this article and they need not therefore be further mentioned at present. I remarked, however, on that occasion that there is a considerable difference in mortality statistics compiled from hospital as opposed to private patients and especially private ophthalmic patients. The former are inmates of the hospital on account of their kidney disease, whereas the ophthalmic surgeon's patients consult him owing to failure of sight, the discovery of the retinitis frequently leading to the detection of Bright's disease which had hitherto been unsuspected. It is to my mind clear, therefore, that in considering the prognostic value of albuminuric retinitis a sharp line must be drawn between hospital and private patients. Those in better social position have the means of taking the hygienic care requisite in Bright's disease and possibly alcoholism plays a more important part in the class met with in hospitals. It will be found that the period of life after the detection of retinitis is longer in private patients, short as it is, than in those set forth in Dr. Miley's cases. The statistics of Mdlle. Possaner are of interest in this connexion.[1] Out of 67,000 patients (45,000 observed at the clinic in 30 years, 22,000 private patients of Professor Haab) albuminuric retinitis was associated with chronic nephritis in 131 cases, or 1·9 per cent. After eliminating the doubtful cases Mdlle. Possaner inquired into the 131 cases mentioned above. Of 80 she was able to obtain certain information but eight had to be left out; for example, owing to accidental death. Of the remaining 72 cases she found the end different according to sex and social position; of 39 patients from the private *clientèle* 23 only, or 59 per cent., succumbed in two years following the diagnosis, the women presenting a mortality of 58 per cent. and the men 61·5 per cent. Five men and five women were alive after a period varying from two and a quarter to six years for the men and three and a half to 11 years for the women. Out of 33 hospital patients all the men died in less than two years and also 68·4 per cent. of the women. Four women were still alive, of whom one was examined six years before. These differences following sex and social position appear to indicate that the want of hygienic care and alcoholism play an important part in the curability of chronic nephritis. The age of the patients varied from six to 70 years, the great majority having passed 40 years. Two only were syphilitic; they survived, one three months and the other two and a quarter years. The author concludes that the prognosis as to life is very serious but not so much so as is generally believed, even in the chronic forms of renal affections and there is hope, she contends, of ameliorating the sufferings as well as prolonging the life of the patient. It must be noted that no mention is made in the abstract from which I quote whether or not Mdlle. Possaner includes the nephritis of pregnancy in her cases.

Dr. E. O. Belt of Washington has collected and tabulated from the literature of the subject and his own practice and that of other surgeons 419 cases in which the continuance of life after the recognition of the retinal lesions had been noted. Of cases in private practice 62 per cent. died in the first year and 14 per cent. lived more than two years. Of cases in hospital practice 85 per cent. died in the first year and only 6 per cent. lived more than two years. Of all cases 65 per cent. died in the first year and 6 per cent. lived more than two years. One patient had survived 17 years but several surgeons of larger experience had seen none who survived more than two years. The better prognosis in private cases is to be ascribed to superior hygienic surroundings.[2] Dr. C. S. Bull, before the American Ophthalmological Society in 1886, presented an analysis of 100 cases of retinitis occurring in the course of Bright's disease. He regarded the prognosis of life as very unfavourable. Out of the exact total of 103 cases collected during 13 years 86 had died, 57 during the first year and 12 during the second year; of the 17 still living 14 were seen during the last six months and one had been seen seven years previously. Dr. Gruening stated also that he had found in 100 collected cases that none had lived over two years after the diagnosis of albuminuric retinitis had been made.

In my previous paper to which reference has been made eight cases were mentioned. The ages of these were 37, 34, 56, 59, 31, 66, 23, and 39 years. Five were males and three were females and the period elapsing from the time when first the retinal disease was recognised to death was as follows: 6 weeks, 4½ months, 5½ months, 10 months, 2½ months, 5½ months, 2 months, and 14 months. These were all private cases except one.

With a view to ascertain how far my experience

Table of Cases of Albuminuric Retinitis in Bright's Disease.

No.	Sex.	Age.	Date when first seen.	Date of death when ascertained.
1*	M.	37	Nov. 29th, 1887.	Jan. 12th, 1888.
2*	M.	34	August 19th, 1887.	Jan. 2nd, 1888.
3*	M.	56	Jan. 8th, 1884.	June 27th, 1884.
4*	M.	59	May 7th, 1883.	April, 1884.
5*	F.	31	Nov. 22nd, 1881.	Feb. 3rd, 1882.
6*	F.	66	Oct. 28th, 1886.	March, 1887.
7*	F.	23	—	Six to eight weeks after diagnosis.
8*	M.	39	August 31st, 1875.	Jan. 7th, 1877.
9	M.	60	July 18th, 1899.	Oct. 13th, 1901.
10	M.	57	July 23rd, 1900.	July 11th, 1902.
11	F.	35	March 10th, 1891.	Living.
12	M.	36	July 13th, 1903.	,,
13	M.	24	Dec. 31st, 1887.	Could not ascertain it.
14	M.	48	Nov. 9th, 1897.	March 21st, 1898.
15	M.	45	Feb. 15th, 1898.	January, 1900.
16	F.	54	July 11th, 1894.	Could not be ascertained.
17	M.	55	Sept. 3rd, 1892.	April 17th, 1895.
18	F.	45	Jan. 7th, 1897.	Living.
19	M.	50	June 2nd, 1897.	March 15th, 1898.
20	M.	33	Feb. 3rd, 1890.	March 10th, 1890.
21	M.	36	Nov. 11th, 1889.	January or February, 1890.
22	M.	51	Oct. 17th, 1892.	Nov. 26th, 1892.
23	F.	58	Dec. 22nd, 1890.	April 13th, 1891.
24	F.	39	March 15th, 1895.	August 28th, 1895.
25	M.	57	July 7th, 1894.	Oct. 24th, 1894.
26	M.	47	July 13th, 1893.	Sept. 18th, 1893.
27	F.	39	March 30th, 1893.	Dec. 9th, 1893.
28	M.	42	Feb. 19th, 1898.	January, 1899.
29	M.	50	March 30th, 1904.	Sept. 7th, 1904.
30	F.	30	Feb. 14th, 1900.	Dec. 14th, 1901.
31	F.	35	June 12th, 1901.	Jan. 4th, 1904.
32	M.	54	July 22nd, 1903.	October, 1904.
33	M.	38	Oct. 26th, 1894.	April, 1899.
34	F.	41	Sept. 22nd, 1896.	Could not be traced.
35	F.	42	Feb. 9th, 1899.	,,
36	F.	32	Nov. 11th, 1902.	,,
37	F.	20	June 7th, 1897.	,,
38	F.	44	July 24th, 1894.	,,
39	M.	54	Oct. 15th, 1894.	,,
40	F.	69	Nov. 10th, 1892.	,,

* These are the 8 cases recorded in my previous paper.

[1] On the Duration of Life after the Appearance of Albuminuric Retinitis, Annales d'Oculistique, 1894, p. 362.

[2] American Medical Association, 1895, Ophthalmic Section, abstracted in Ophthalmic Review, 1896, p. 58.

accorded with that of other observers I have collected all the instances in my private case-books subsequently to the date of publication of my first paper. I find records of 35 cases. Three of these must be at once excluded as the retinal affection was not typical. One of these died, however, about a couple of years later, one is living after three years, and the other cannot be traced. Of the remaining 32 suitable for our purpose I am unable to trace nine, thus leaving 23 (see table). Three are known to be living. Of these, one a man, aged 36 years, was first seen in July, 1904; the kidney affection had been previously recognised. Two were women and both had suffered during pregnancy. One, aged 35 years, seen in March, 1891, recovered vision partially, but became affected again in the next pregnancy, two years later, with resulting blindness. The other woman, aged 45 years, seen after the birth of the first child, in January, 1897, made a good recovery. These, with other instances of the albuminuria of pregnancy, will be considered again later. The remaining 20 were ascertained to have died as follows: two at the end of one month, two at two months, one after three months, two after four months, one after five months, one after six months, two after nine months, one after 12 months, one after 15 months, one after 22 months, two after 24 months, one after 28 months, two after 32 months, and one after four and a half years. The average duration of life in these cases is 14½ months, but added to the eight previously recorded, making a total of 28, the average is barely one year. This average (12 months), compared with Dr. Miley's of four and a half months for hospital patients, fully bears out the contention of the less fatal significance of renal retinitis in private patients. The period is, nevertheless, a very brief one and my cases, as well as the observations of others to which allusion has been made, clearly show that the appearance of changes in the retina is a sign-post of the systemic havoc wrought by the chronic nephritis and that it portends a fatal termination, it may be in a few months, and rarely longer than two years. The renal disease associated with pregnancy is rightly excluded from consideration in this connexion. For, fortunately, it not infrequently happens that with the termination of gestation the albumin disappears and the retinal disease clears up, though often vision may remain seriously affected and it is recognised that the condition is not fatal to life in the same way as in chronic Bright's disease. Among my cases is one instance (No. 31) of a woman who was affected during pregnancy. The renal condition, however, persisted, and it did not appear to me to fall precisely among ordinary cases of Bright's disease with pregnancy and it has not therefore been excluded.

Sheffield.

ON THE CHEMICAL MECHANISM OF GASTRIC SECRETION.[1]

BY J. S. EDKINS, M.A., M.B. CANTAB.,
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IT has long been known that the introduction of certain substances into the stomach provokes a secretion of gastric juice. This is regarded as in no sense depending upon mere mechanical stimulation of the mucous membrane and it has been thought that the nervous mechanism of the gastric glands may be susceptible to certain local chemical stimuli. On the analogy of what has been held to be the mechanism at work in the secretion of pancreatic juice by Bayliss and Starling it is probable that, in the process of absorption of digested food in the stomach, a substance may be separated from the cells of the mucous membrane which, passing into the blood or lymph, later stimulates the secretory cells of the stomach to functional activity. The following observations support this view. If an extract in 5 per cent. dextrin of the fundus mucous membrane be injected into the jugular vein there is no evidence of secretion of gastric juice. If the extract be made with the pyloric mucous membrane there is evidence of a small quantity of secretion. With dextrin by itself there is no secretion. Extracts of fundus mucous membrane in dextrose or maltose give no secretion; extracts of pyloric mucous membrane give marked secretion; dextrose or maltose alone brings about no secretion. If extracts be made with commercial peptone it is found that no secretion occurs with the fundus mucous membrane, a marked secretion with the pyloric mucous membrane; the peptone alone gives a slight secretion. If the extracts be made by boiling the mucous membrane in the different media the effect is just the same—that is to say, the active principle, which may be called "gastric secretin," is not destroyed by boiling.

Finally, it may be pointed out that such absorption as occurs in the stomach apparently takes place in the pyloric end. With the pig's stomach, in which the true cardiac region differs from the typical fundus region in having only simple glands as in the pyloric, extracts of the cardiac region in general have the same efficacy in promoting secretion as do pyloric.

St. Bartholomew's Hospital.

[1] A paper read before the Royal Society on May 18th, 1905.

A CASE OF STRANGULATED HERNIA OF THE SMALL INTESTINE AND BLADDER.

BY G. F. BARHAM, M.B., B.C. CANTAB., M.R.C.S. ENG.,
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THE patient, a male, aged 70 years, was admitted into Claybury Asylum on March 5th, 1904, suffering from senile melancholia. He was restless, apprehensive, and had delusions of persecution and was impulsive at times. There was well-marked arterio-sclerosis with some cardiac hypertrophy. The lungs were healthy. The patient had a double inguinal hernia, on the right side direct and irreducible, on the left oblique and reducible. He was wearing an old double inguinal truss.

On March 9th he was visited at 9 A.M. He had vomited once early in the morning and was complaining of abdominal pain. He was lying on his back with the legs drawn up and was in evident distress. There was frequent retching; his pulse was 90, small and hard; his temperature was 98° F. There had been no action of the bowels for 24 hours and he had passed no urine during the night. There was a hard, tender swelling of the size of an orange, just above and to the right of the symphysis pubis; this was dull on percussion and conveyed no impulse on coughing. There were no other signs and the left hernia was easily reducible. The case was clearly one of strangulated hernia. A catheter was passed and about ten ounces of urine were withdrawn. At 11 A.M. chloroform anæsthesia was induced. With the usual antiseptic precautions the skin was incised over the swelling in a vertical direction, and after dividing and reflecting the various layers a hernial sac was exposed. The neck of the sac was then defined. It was easily separated from its surroundings except on its lower aspect where it was closely adherent to an ill-defined swelling, which, together with it, was protruding through a small opening in the abdominal wall. The sac was next opened and found to contain some blood-stained fluid, a small clot, and a knuckle of small intestine. After enlarging the ring the bowel could be drawn down and being in a healthy condition was returned into the abdomen. The sac was then held up out of the way with artery clips. As above stated, the sac was attached below to a swelling which was of about the size of a testicle, firm to the touch, and intimately adherent to its surroundings; it was covered by muscular and old inflammatory tissue and could not be defined at all clearly. On passing the finger into the abdomen through the hernial sac the peritoneum was found clear on all sides; the swelling could be felt passing through the ring but was not traceable beyond. In attempting to define this structure with the knife handle what appeared to be a hernial sac containing a little fluid was exposed; this was nicked and the opening was enlarged, when a small quantity of urine escaped. Through this opening a finger could be passed through the abdominal ring into the bladder. Every effort was made to keep the two parts of the wound separate. The hernial sac was dissected from the bladder as far as possible, ligatured, and the distal portion was excised. The bladder was closed by a continuous catgut suture passing through the outer coats and the whole wound was cleansed thoroughly with a 1 in 20 carbolic lotion, subsequently with boric acid lotion.

The abdominal wound was then closed except at its lower end, where a large drainage-tube was inserted running down to the bladder. A No. 7 English catheter was tied into the bladder.

The chief points in the subsequent history of the case were as follows. The tube was removed on the fourth day. The wound healed by first intention and the stitches were removed on the tenth day. On the second day there was some vomiting but this soon passed off. On the third day the bowels acted freely, nourishment was well taken, the pulse improved and the temperature remained normal. The bladder was washed out daily with boric acid lotion and the catheter was cleansed and replaced. There was some hæmaturia with a few clots on the first day, but the urine soon passed clear. On the seventh day the catheter was removed. Urine was passed normally from this date. There was rectal incontinence at first, which rendered the nursing very difficult; this passed off after a week. During the first 48 hours there were much pain and restlessness. On the third day the latter became extreme, the patient developed hallucinations of sight and hearing, saw dead bodies all round him and imagined that the attendants were going to murder him. The necessary rest was only obtained by repeated injections of morphine. After about a week he became quieter and on the twenty-first day he was allowed up. There has been no further local trouble. The patient now wears a double inguinal truss, the right pad of which was made specially large and fitted with a depression in its lower part to prevent injurious pressure on the bladder.

Hernia of the bladder is sufficiently uncommon to be of special interest and I am encouraged to publish the case by the kind permission and help of Dr. Robert Jones, medical superintendent. In this case the greater portion of the protruded viscus was extraperitoneal and, taking into consideration how much more adherent it was than the intestinal hernia, was probably of longer duration than the latter. On the other hand, the dragging of a hernial sac on the parietal peritoneum is far more likely to cause a hernia of the bladder. The fact that on passing the finger into the abdomen through the hernial sac the peritoneum was felt to be clear on all sides, correctly interpreted, should have helped towards the true diagnosis, which would have been rendered certain by passing a catheter during the operation.

The peculiar solid, elastic feel of the protruding portion of the wall of the bladder in no sense suggested a hollow viscus; and I am not aware of any text-book description of hernia of the bladder which points out this feature. Yet in reconsidering the case in the light of experience the folded and perhaps hypertrophied muscular coat may, in the absence of distension by urine, be expected to give rise to this sensation of firmness and solidity.

Claybury.

TWO CASES OF ACTINOMYCOSIS.

BY DOUGLAS DOUGLAS-CRAWFORD, M.B. EDIN., F.R.C.S. ENG.,

HONORARY SURGEON TO THE LIVERPOOL STANLEY HOSPITAL AND LECTURER UPON SURGICAL AND APPLIED ANATOMY IN THE UNIVERSITY OF LIVERPOOL.

IN THE LANCET of Oct. 29th, 1904, p. 1204, five cases of actinomycosis are recorded. During the past year I have had two cases under my care, each of which presents some points of interest.

CASE 1.—The patient was a ship's surgeon, aged 29 years, who bruised his left flank against a stanchion on the homeward voyage from the Amazon on Nov. 28th, 1903. Within a fortnight two small papules appeared over the bruised area but remained stationary for some time. These papules were associated with what the patient regarded as a cellulitis and the pain was so severe that he commenced hypodermic injections of morphine, gradually increasing the dose until he was taking eight grains per diem. Three months later—in February, 1904—the lesion began to spread rapidly until it reached the crest of the ilium, then again remained quiescent, but just before he came under my care it had extended over the buttock, inwards towards the crest of the os pubis, and upwards over the lower ribs. The patient was admitted to the Stanley Hospital on July 15th, 1904. He was very emaciated and tremulous—probably due to the morphine habit—and his urine contained a trace of albumin. The area of skin affected is somewhat indistinctly shown in the illustration but in addition to this there were two or three independently affected areas on the left thigh. The skin over the site of the lesion was purplish in colour, indurated in some parts and œdematous in others. Small sinuses were scattered over the affected area, and here and there were seen pustular elevations, any one of which upon pressure discharged a greyish-coloured pus and left a narrow superficially burrowing sinus. The pus was examined microscopically and although the presence of the ray fungus was not perhaps absolutely proved yet I decided to excise the whole of the infected area, for I felt I had ample grounds for excluding the other two diseases which give rise to somewhat similar chronic ulcerations—viz., tubercle and syphilis. The lesion was limited entirely to the skin except at one spot just

To show the extent of skin affected in Case 1.

over the external abdominal ring and here the aponeurosis of the external oblique was evidently diseased. The extensive raw surface was somewhat narrowed by a plastic operation but a considerable area was left to granulate. The patient suffered severely from shock the same evening but after that made rapid progress; we had, however, some difficulty with portions of the scar tissue which time after time became hæmorrhagic and broke down, leaving a weak ulcer. However, after energetic scraping we finally obtained a sound healthy scar five months after operation. Microphotographs kindly taken for me by Dr. R. E. Kelly showed the fungus in two forms—one simply the mycelium imbedded in a hyaline material and the other a radial arrangement with hyaline clubs at the periphery.

CASE 2.—This patient was sent to me by Dr. T. F. Williams of Cefnybedd. The patient gave the following history. Six weeks previously a painful lump appeared beneath the right half of the mandible just after an attack of quinsy. This was attributed to a carious molar but its extraction had no effect upon the pain and the swelling rather appeared to increase. Upon examination the swelling was found to extend from the angle of the jaw on the right side across the middle line in front and beyond the level of the hyoid bone below; the skin over it was purple and œdematous and dotted all over with narrow sinuses and upon pressing one of them a creamy pus was discharged containing a very considerable number of small granules. The diagnosis was fairly obvious and was confirmed by examination of a "crushed granule" under the microscope. The patient had difficulty in opening his mouth, the jaw was not thickened, and the site of the extracted tooth appeared healthy. I operated on Oct. 1st, 1904. The operation consisted in excising the whole of the œdematous mass and meant the removal of the submaxillary gland, the digastric (anterior belly) and mylohyoid muscles and the lower third of the internal pterygoid muscle. The mandible was thoroughly exposed and found to be healthy. The point of entrance of the fungus must have been through the mucous membrane

to the inner side of the angle of the jaw, its further path being along the internal pterygoid into the submaxillary triangle. The patient made a good recovery, the wound being perfectly healed when I saw him on Dec. 5th, two months after the operation, and all he suffered from was a slight facial paralysis due to division of some of the cervico-facial branches at the time of the operation. Microphotographs were taken from sections but in none did we find the typical radial arrangement with hyaline bodies, as shown in one of the photographs from the first case.

With regard to treatment, in both cases I excised the whole area affected, considering it more satisfactory than scraping, and in the second case it would hardly have been possible to remove the whole of the disease with the curette. Operation was undertaken so soon after seeing both patients that one cannot say much as to the value of iodide of potassium. The first case had none but in the second I continued the administration of 60 grains every 24 hours for a period of six weeks and in addition irrigated the wound with a solution of iodine during the first week and later injected iodopin into two or three suspicious-looking spots in the deeper parts of the wound and packed the cavity with gauze soaked in iodopin. I think the patient derived some benefit from this method of dressing and he was able to leave the nursing home in three weeks with a healthy granulating surface.

As to the mode of infection the first case presents some difficulty. A few cattle were carried on board ship for the use of the crew and part of the duties of the patient's steward was to feed them. It is possible that the infection may have been conveyed through the handling of my patient's clothes. The small isolated spots, I feel convinced, were produced by the patient himself through the medium of his hypodermic syringe. The second case is fairly simple. The patient is a butcher; often keeps his cattle for a few days before slaughtering them and superintends the feeding himself.

There is a marked difference in the rate of growth in these two cases, the first being fortunately extremely chronic, and it is of interest to note that in this case were seen the hyaline bodies which are not usually found in human actinomycosis. Attempts were made both by Dr. Kelly and myself to obtain cultivations, but they were unsuccessful, as were also some inoculation experiments upon guinea-pigs.

P.S.—I have seen both patients within the last few weeks; both remain perfectly well, but my first patient complains of anæsthesia of the skin over the crest of the ilium and just over the region of the os pubis.

Liverpool.

NATIONAL SOCIETY FOR EMPLOYMENT OF EPILEPTICS, THE COLONY, CHALFONT ST. PETER.—The twelfth annual meeting of the governors of this society was held on July 10th at the London offices, Denison House, Westminster. The chair was taken by Mr. E. Montefiore Micholls and the reports of the honorary medical staff and the executive committee for the year 1904 were received and adopted. From the former report it appears that the general health of the colonists during the year was very good. There was entire freedom from any epidemic or contagious disease and only two colonists died during the year. Medicinal remedies, it is pointed out, form only one item in the treatment of this malady, the most complete treatment being that which is carried out in such institutions as the Chalfont Colony, "where the epileptic is guided along hygienic lines in respect of the suitable quantity and quality of food, the proper allotment of work and rest, and the carrying out of those physical exercises consistent with the malady." The report of the executive committee shows the past year to have been one of great progress and extension, a new home for the special benefit of Hampshire cases having been opened during the year, and also an administrative house and various other buildings. Notwithstanding these additions, however, the accommodation is stated to be still entirely insufficient to meet the demand for admission, especially as regards the women's department, where the congestion of applications is so great that unless additional accommodation is provided each applicant will have to wait several years before her turn for admission will come, the malady in the meantime becoming hopelessly confirmed, so that the remedial aims of the colony would to a great extent be defeated. Funds for extension are therefore urgently needed.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

THE MIDDLESEX HOSPITAL.

A CASE OF HYDRONEPHROSIS AND RENAL CALCULI, IN WHICH 16 SMALL CALCULI WERE DETECTED BY THE X RAYS AND IN WHICH THE HYDRONEPHROSIS WAS DUE TO CONSTRICTION OF THE PELVIS OF THE KIDNEY BY AN ARTERY AND A VEIN PASSING TO ITS LOWER POLE.

(Under the care of Mr. HENRY MORRIS.)

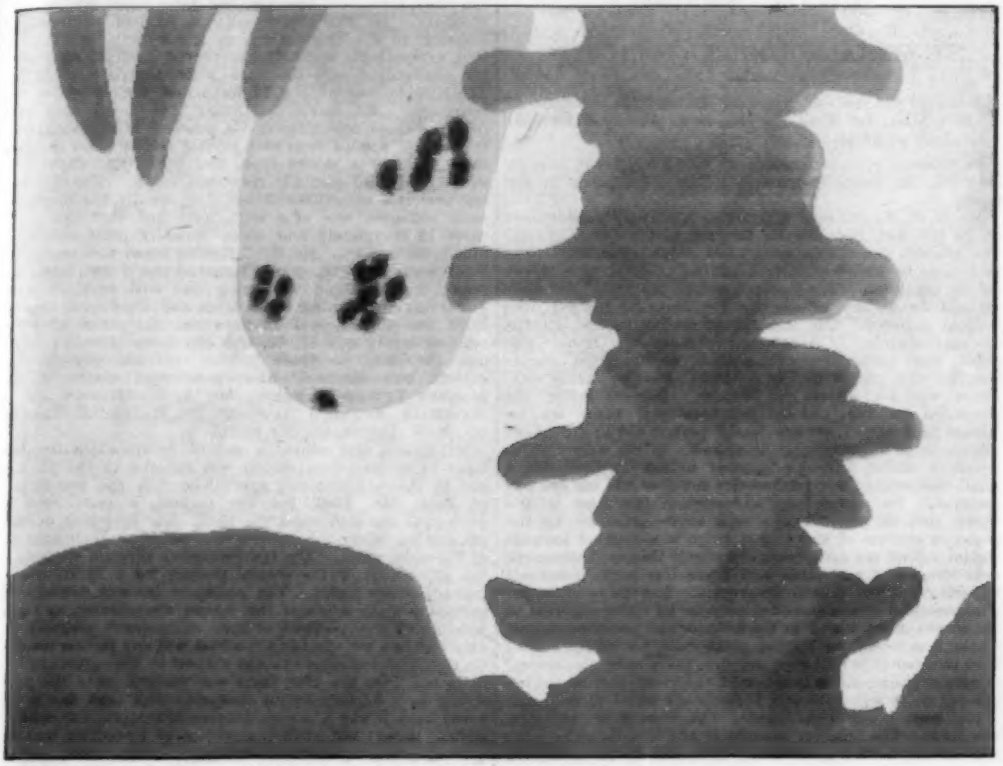
For the notes of the case we are indebted to Dr. W. Sidney Sweet, house surgeon.

The patient, a married woman, aged 29 years, suffered from pain in the abdomen, nausea, and occasional vomiting for nearly ten years. At first she ascribed these symptoms to indigestion; as a girl she was anæmic. About four years ago she sought relief for pain in the left side (loin) and vomiting and was sent to a London hospital. There she was under the care of a surgeon who operated upon her and fixed the left kidney. After the operation her symptoms improved for about a year. She married and had two children, the last being born three months before admission to the hospital. A month after the birth of the last child she had a severe attack of pain in the left side extending down into the lower limb on that side. Subsequently she had other attacks which lasted from two to three hours and of such severity that she had to go to bed. She also had complained of a smarting sensation after micturition and some difficulty in starting and controlling the act. There was also a history of frequency of micturition both nocturnal and diurnal at times. On May 1st she was admitted to the Middlesex Hospital with the above symptoms. The urine was alkaline, with specific gravity varying from 1012 to 1020; there was a slight amount of albumin and a small quantity of pus, but no blood. On the 8th the urine contained a large quantity of pus. The patient was examined under chloroform and the bladder was sounded with negative result. The generative organs were found to be quite normal. The urine was examined for tubercle bacilli but none were found.

On May 16th the patient was transferred to the care of Mr. Henry Morris. She was then pale and thin and complained of pain in the left side. Her pulse was weak but regular and not unduly frequent; her temperature was normal. The urine was as described above. She was passing on the average 34 ounces in the 24 hours and there were five grains of urea to the ounce. She was radiographed and the skiagram showed a number of small but definite shadows arranged in groups of five, four, six, and one respectively—16 in all—and measuring on an average three millimetres in diameter. Each was quite regular and rounded (see Fig. 1).

On May 19th Mr. Morris operated. An incision was made through the old scar in the left loin and some strong fibrous bands were divided which were found connecting the kidney with the lumbar parietes the result of the previous operation of nephropexy. On exposing the kidney it was found to be small and its pelvis to be dilated considerably. A small incision was made in the pelvis and a ureteral bougie was passed easily along the ureter into the bladder. Less than half-way up the dilated renal pelvis a branch of the renal artery of considerable size crossed it obliquely on its posterior aspect. Parallel to the artery, and about half an inch lower down, was a branch of the renal vein. These vessels were running to and from the lower pole of the kidney respectively. The artery was found to be lying in a groove on the wall of the pelvis of the kidney. Above it the pelvis was dilated. There could be no question but that here was a hydronephrosis resulting from obstruction in the pelvis of the kidney as the result of a constriction caused by an

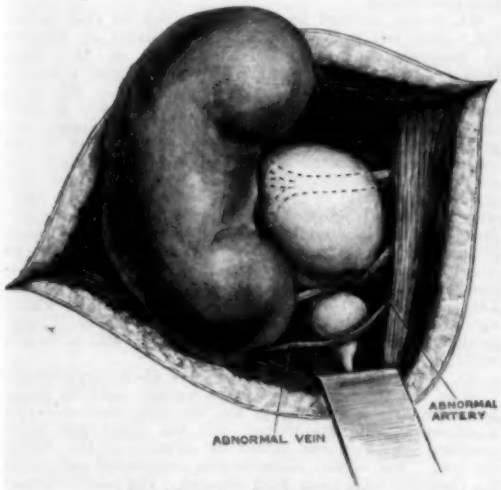
FIG. 1.



Appearances seen in radiography (reduced about one-third).

abnormal artery and vein passing to and from the lower pole of the kidney (see Fig. 2). The constricting artery was double ligatured and cut and the vein was treated in a like manner. The kidney was incised along its outer border. It was explored with the finger inserted into the incision, and 16 small calculi were separately removed. (The number and shape of these calculi corresponded with the shadows shown in the skiagrams.) The wound in the kidney was then closed by five sutures of silk and the small incision in the pelvis was sutured. The kidney was replaced within the abdomen and the wound was closed. The urine for four days contained more blood than is usual after such an operation, but in other respects the recovery was normal. The stitches were removed from the wound on the tenth day.

FIG. 2.



Showing abnormal vascular supply.

Note.—The bulging below the vein, as shown in the diagram, is incorrect.

Remarks.—The above case is one of very considerable interest from many points of view. It is of special interest in that it illustrates in a remarkable manner the increasing accuracy and exactness of the evidence which is now being furnished by radiography in cases of suspected renal calculus—evidence which with the improvement in the manufacture of tubes and the sensitiveness of the plates has in many cases rendered diagnosis a certainty. It is of pathological interest in that it shows how an abnormal vascular supply may interfere with the functions of the kidney; and it is of interest clinically in raising the question in what way and to what extent the earlier symptomatic history may be explained by the anatomical variation found at the operation.

THE CARDIFF INFIRMARY.—The sixty-eighth annual report of the Cardiff Infirmary has just been published. An interesting account is given of the growth of the institution since 1837, when there were 42 in-patients and 1074 out-patients. The income at that time was £617 and the expenditure £759. In 1904 2144 in-patients were admitted and 19,525 out-patients treated. The income amounted to £11,476 and the expenditure to £13,130. During the last ten years the annual income of the infirmary has only once exceeded the annual expenditure, and that was in 1903.

Medical Societies.

OPHTHALMOLOGICAL SOCIETY.

Tubercle of the Iris.—Sympathetic Ophthalmia.—Glioma in More than One Member of the Same Family.—Microphthalmos with Orbital Cyst.

THE annual general meeting of this society was held on July 7th, Mr. JOHN TWEEDY, the President, being in the chair.

Mr. M. S. MAYOU read a paper on Secondary Tuberculosis of the Iris with Spontaneous Rupture of the Lens Capsule. The patient was a boy, aged three years. For some time previously he had been attending the hospital with tuberculous dactylitis. Three weeks before attending the ophthalmic department of the London Hospital his eye had become inflamed. The left eye showed a typical conglomerate tubercle in the upper part of the iris. The pupil was occluded by exudation so that the condition of the underlying lens could not be made out. There was no history of injury. Directly after his admission to the hospital he developed three smaller masses in the iris at the lower part. Under treatment the condition improved and he was sent to the convalescent home; a month later he returned to the hospital with a small hæmorrhage into the anterior chamber and his eye was removed. On pathological examination the mass in the upper part of the iris was seen to be adherent to the posterior surface of the cornea which was buckled inwards by the pull of the underlying cicatricial tissue. Descemet's membrane was perforated and there was some round-cell infiltration of the substantia propria. The iris in the upper part consisted of a mass of fibro-cicatricial tissue adherent to the cornea in front and to the anterior and posterior capsule of the lens behind containing giant cells, but no epithelioid cells or tubercle bacilli were found. There were also several masses of round-cell infiltration in the lower part of the iris making their way outwards towards the canal of Schlemm—the most usual situation for the disease to perforate the globe. The anterior capsule of the lens showed a large gap in its continuity, evidently produced by the softening effect of the tubercle, followed by the cicatricial contraction in the anterior synechiæ. The retina showed several masses of round-cell infiltration similar to that seen in the lower part of the iris, evidently of a tuberculous nature. The special points of interest about this case were: 1. The unusual situation at which the tuberculous mass had invaded the cornea. 2. The spontaneous rupture of the lens capsule. 3. The nature of the exudation into the retina. 4. The general tendency towards cicatrisation in the lesion—a fact which, taken in conjunction with the series of cases reported by Sandford of tuberculous iritis associated with pulmonary tuberculosis, held out hope of successful treatment by tuberculin (Wright's method).—Mr. SIMEON SNELL suggested the injection of iodoform into the anterior chamber as an efficient remedy for tuberculous iritis.—Mr. H. E. JULER considered the presence of giant cells scarcely sufficient proof of tubercle and inquired into the condition of the retina.

Mr. SIMEON SNELL (Sheffield) related the following cases of Sympathetic Ophthalmitis showing itself after Enucleation. The first was that of a boy, aged ten years, who having been knocked down by a horse and trap was picked up unconscious. Besides injuries to the head he had sustained a large wound at the inner side of the sclerotic, reaching forwards through the ciliary region to the cornea. The accident occurred on April 4th, 1904, and enucleation of this eye was performed on April 20th. On May 9th there was sympathetic ophthalmitis, and judging from the account given it must have been present since the 5th. It was a severe instance of the disease showing a great tendency to recurrence but ultimately the patient was able to find his way about and to read large type. At the same time another case was under observation, that of a man, aged 26 years. The left eye had been injured by a kick on June 13th; it had been enucleated elsewhere on June 29th. The injury involved the corneo-scleral junction. He went to Mr. Snell on July 29th when there was marked sympathetic ophthalmitis in the right eye; it had begun on July 22nd. It was a severe type of the disease, the ultimate result being practical blindness. Mr. Snell referred to another case, which he had not previously recorded, of a girl, aged about ten years, for which, however, the dates could not be given precisely. He also mentioned that he had published an instance in the Transactions of the society for 1882. In this, sympathetic ophthalmitis showed itself 32 days after the enucleation and 106 days after the date of injury. The disease was of a mild form and perfect vision was recovered. Mr. Snell mentioned that there were thus four instances occurring in his practice after enucleation. One was of a mild form with perfect recovery and the other three were of a severe type, two becoming totally blind whilst the third partially recovered vision. The report of the society's committee stated that usually the disease in such instances was of a mild form and that out of 30 cases 18 completely and three partially recovered, while nine became blind. Mr. Snell further noted that two of his cases were children, one a boy, and one a girl, aged ten years, the remaining two being men both aged 26 years. The time elapsing after enucleation and the disease showing itself was 16, 23, and 32 days and the period after the original injury was 32, 40, and 106 days. For the fourth case the data on these points were not precise.—The subject was discussed and cases were cited by Mr. JOHNSON TAYLOR (Norwich), Mr. A. W. ORMOND, Mr. D. MARSHALL, Mr. W. B. LAWFORD, Mr. H. SECKER WALKER, Mr. R. W. DOYNE, and Mr. SNELL.

Mr. SNELL also related a case of Sympathetic Ophthalmitis in which normal vision was restored in the exciting and in the sympathising eye. The left eye was injured on Sept. 6th, 1904, but the patient, a man, aged 33 years, was not seen until the 19th. The fragment of steel causing the injury was about a quarter of an inch long and of the same width. The iris prolapsed through a wound in the upper part of the cornea, passing for a little distance into the ciliary region. The prolapsed iris was immediately excised and the edges of the wound were cleared as far as possible of any portions of iris. Subsequent progress was excellent and the eye has not occasioned any further trouble. On Oct. 12th the right eye was noticed by the patient to be a little red. On the 17th there was distinct iritis, the pupil acting very imperfectly to atropine. The next day it was noted that it was a severe instance of sympathetic ophthalmitis. It was not until the middle of November that the eye began to look white and the pupil to dilate fully. Since then, however, progress has been satisfactory, there have been no recurrences, and vision in each eye is $\frac{6}{6}$, and J.1 is read perfectly. Mr. Snell referred to a case recorded by him in the Transactions of the society for 1883 in which the sympathetic ophthalmitis had resulted from an injury not at all unlike that in the present instance, the injury being caused by a packing needle which had penetrated the left eye at the sclero-corneal junction. The sympathetic iritis in this case, however, was of a very mild form compared with that now related.

Mr. SNELL referred to the paper which he read before the society last year and in which he related an instance of Glioma occurring in two members of the same family. Only three observers had then placed cases on record. He now related a further case which this year had come under his notice. The patient was a male child, aged two and a quarter years, and glioma was present in each eye. It had been noticed first in the left eye a few months after birth and in the right eye within the last few months. It was ascertained that the only other child of the parents was a girl, born in 1897, who was similarly affected with glioma in both eyes which proved fatal. Inquiry left no doubt as to the disease being glioma. In the instance now related the most affected eye was first enucleated and submitted to microscopical examination. Mr. E. Treacher Collins reported it to be a glioma. Later, the second eye was removed and examined with a similar result. Mr. Snell mentioned that the child, particulars of whom were related last year, was still alive and well.

Mr. R. R. CRUISE described a case of Microphthalmic Cyst of the Orbit. The patient, a woman, aged 24 years, had from birth a swelling in the left orbit associated with a microphthalmic eye pushed into the upper and outer quadrant. Trouble was caused by variation in the size of the cyst. The orbital contents were eviscerated and during the operation some clear fluid escaped. The patient herself made a good recovery. Microphotographs were shown which displayed the pathological changes in the globe and their

connexion with the orbital cyst. From a clinical point of view the diagnosis was by no means easy, and the differentiation from meningocele was a matter of considerable uncertainty and anxiety. The pathological interest centred in the very free communication that existed between the interior and exterior of the globe by a wide coloboma at the posterior pole, a condition which permitted the free passage of the fluid secreted by the well-developed ciliary processes into the cyst, producing the increase in size which necessitated operation.

The following case and card specimen were shown:—

Mr. SECKER WALKER: Diagrammatic Model showing the path of light rays in various forms of astigmatism.

Mr. ORMOND: Keratomalacia.

OBSTETRICAL SOCIETY OF LONDON.

Endothelioma of the Uterus.—Malignant Embryoma of the Ovary.—Extra-uterine Gestation.—Large Fibrotic Uterus with Calcification of the Arteries.—Small Intestine Adherent to the Stump of an Ovarian Tumour.

A MEETING of this society was held on July 5th, Dr. W. R. DAKIN, the President, being in the chair.

Mrs. SCHARLIEB, M.D., described a case of Endothelioma of the Uterus in a woman, aged 50 years, who for 11 years had noticed an abdominal tumour, associated with hæmorrhage and bladder symptoms, and thought to be a fibroid. It grew rapidly and at the time of operation reached two and a half inches above the umbilicus. It was removed, together with the uterus and appendages. The patient made an uneventful recovery and remains perfectly well now, more than two and a half years afterwards. The tumour weighed 44 ounces. The uterine cavity was enlarged and measured three and a quarter inches in length, the mass bulging into it from the upper part. The mass rose up from the fundus in the form of a cyst of the size of a six months' pregnancy. The cyst contained spontaneously coagulating slightly yellow fluid. The wall of the main cyst contained other cysts, varying in size from that of a cherry to that of a hen's egg. They were filled with clear fluid; their walls were perfectly smooth and lined by a definite membrane, visible to the naked eye. The cysts were lined with a single layer of flat angular cells resembling endothelium. In certain places, however, especially in a definite area in the largest cyst, small masses of new growth projected into the cavity. It was thought that the tumour was probably a lymphangioma, with small nodules of endotheliomatous new growth in the walls.

Mr. J. H. TARGETT and Mr. H. T. HICKS gave an account of two cases of Malignant Embryoma of the Ovary, including references to the recent literature of the subject. It was remarked that such growths were usually included in the group of teratomata but on account of their close relationship to the dermoid tumours of the ovary Mr. Targett and Mr. Hicks preferred the title of malignant embryoma. They offered the following conclusions:—1. Malignant embryomata of the ovary are rare. They usually occur in young adults but may be met with in childhood. 2. The tumours may attain a large size; they are usually pedunculated and devoid of adhesions unless the pedicle has become twisted. 3. Secondary growths are frequently restricted to infection of the peritoneum. They may present the same composite structure as the primary growth or be wholly composed of sarcomatous elements. 4. Pain and ascites are constant symptoms; ascites may develop early, even before actual infection of the peritoneum. In several instances a diagnosis of twisted ovarian cyst has been made. 5. Ovarian tumours exhibiting an irregular disposition of embryonic elements are very liable to be malignant.

Dr. R. BOXALL showed an Extra-uterine Gestation Sac which had ruptured in the fifth month of pregnancy.—Dr. G. E. HERMAN said that after the mid term of pregnancy rupture of the sac became rarer and rarer as the months went on. There was a broad contrast between the first and second half of ectopic pregnancy: in the first half rupture was frequent and the risk of operation was small; in the second half rupture was rare and the risk of operation was great.

Dr. J. S. FAIRBAIRN showed the Uterus and Appendages removed by abdominal hysterectomy from a woman, aged 50 years, as a well-marked example of arterial degeneration. The naked-eye appearance of the uterus suggested a general fibrosis. Further examination showed a distinct increase of fibrous tissue and calcification of some of the uterine arteries. This condition was associated with menorrhagia and consequent anæmia and loss of strength.—Dr. H. M. MACNAUGHTON-JONES remarked that in these cases of calcification it was noticed that there was previous hyaline degeneration.—Dr. AMAND J. M. ROUTH asked whether there was any explanation of the menorrhagia, which was a constant symptom of these cases. With the atrophic mucosa and the sclerosed arteries a diminished rather than an excessive menstrual loss might be expected.

Mr. HERBERT J. PATERSON showed a Loop of Small Intestine Adherent to the Stump of an Ovarian Tumour and remarked that the condition found might be partly accounted for by the presence of chronic peritonitis at the time of operation, but the specimen emphasised the importance of leaving the pedicle with a smooth surface free from knots and especially of obtaining early movements of the intestine.—Dr. HERMAN asked whether anyone had ever opened an abdomen within a few weeks after abdominal section without finding adhesions. He himself had never met with, heard of, or read of such a case. Adhesions were the immediate invariable result of abdominal section and in course of time were absorbed.—Dr. MACNAUGHTON-JONES said that he preferred giving saline instead of calomel when it could be tolerated. He thought the mistake was frequently made of being over-anxious with regard to the bowel.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases and Specimens.—A Clinical Study of Influenza in the Epidemic of 1904–05.—On the Urine Separator of Luys.—Post-anæsthetic Sickness.

A MEETING of this society was held on July 5th, Professor J. CHIENE, the President, being in the chair.

Dr. W. ALLAN JAMIESON showed a case of Granulosis Rubra Nasi. The patient, a boy, aged nine years, who was healthy enough though with rather feeble peripheral circulation, as shown by his hands and feet readily becoming cold in winter, went to the Royal Infirmary on June 17th, 1905. With the exception of slight catarrhal jaundice three years since he has apparently had no illness. Two and a half years ago his mother remarked that the lower half of the nose was distinctly reddened, and beads of sweat poured from it, especially at meal times. There has been little change since then. The redness is made up of fine punctiform elevations, imparting a somewhat granular aspect. Droplets of perspiration stud the part. There were no subjective sensations. On the right side of the nose near the root there is a small spider nævus. An ointment containing sulphur and salicylic acid in vaseline was directed to be rubbed in twice a day, and now (July 6th) the redness is less and the sweating diminished, though the weather has been hot. The disease in all respects corresponds to the description of Jadassohn, MacLeod, and others.

Dr. W. T. RITCHIE exhibited for Dr. G. A. GIBSON two cases of Syringomyelia. In the first case, that of a man aged 55 years, the main features were complete anæsthesia to every form of sensory stimulus over those areas corresponding to the segmental distribution of the eighth cervical and first dorsal segments on the right side and the eighth cervical and first to fourth dorsal segments on the left side, bilateral dissociated anæsthesia from the fifth to the ninth dorsal segments, wasting of the muscles of the thenar eminences in both hands, with fibrillary tremors in those muscles, and a double extensor response. The second case, that of a man aged 44 years, presented dissociated anæsthesia over the left upper and lower extremities, the left side of the face and of the trunk, paralysis of the right cervical sympathetic, and an extensor response on the left side but no wasting or paralysis of voluntary muscles.

Mr. F. M. CAIRD showed: (1) a patient after Excision of the Rectum by Kraske's Method; and (2) a patient after recovery from Purulent Appendicular Peritonitis with Paralysis of the Gut.

Mr. J. M. COTTERILL showed a case of Tumour of the Parotid and another with Perforating Ulcer.

Mr. CHARLES W. CATHCART exhibited (1) a patient after Suture of a recently fractured Patella; (2) a patient after Wiring of a Fractured Femur on account of malposition;

and (3) a patient after Elevation of a very Extensive Depressed Simple Fracture of the Skull.

Mr. J. W. STRUTHERS demonstrated: (1) a patient after Radical Cure of Inguinal Hernia under local anæsthesia; (2) a patient after Excision of the Astragalus for Compound Subastragaloid Dislocation, &c.; and (3) a patient after Unusual Fracture of the Ulna.

Mr. H. ALEXIS THOMSON exhibited a patient after operation for Arterio-Venous Aneurysm in Scarpa's Triangle, followed by secondary hæmorrhage, ligation of the external iliac artery, and gangrene of the limb.

Mr. COTTERILL exhibited (1) a series of Gall-stones; and (2) a series of Damaged Semilunar Cartilages from the Knee.

Mr. THOMSON exhibited (1) a specimen from a case of Cholecystectomy for Gall-stones and Pendulous Gall-bladder; and (2) Enlarged Prostate and Vesical Calculus removed by suprapubic operation.

Dr. MICHAEL DEWAR read a paper on a Clinical Study of Influenza in the Epidemic of 1904–05. He said that the first trustworthy account of an influenza epidemic was that of 1510. Records of several epidemics were met with then. One in 1732 spread over the whole of Europe and part of America; another was recorded in 1785; while another in 1803 invaded the whole of Great Britain. An epidemic in 1847 attacked London in a single day and affected over half a million of people. Even at that time it was believed to depend on a specific contagion. 30 years ago physicians had not much experience of it. There had been at least three epidemics in Edinburgh during recent years, 1889–90, 1898, and 1904–05, each exhibiting the same types but the predominating type differing on each occasion. The epidemic of 1889–90 was chiefly of the nervous type and was very severe, many cases ending in melancholia, insanity, and death. In the epidemic of 1898 the cardiac and pulmonary type predominated. Both of these epidemics attacked the middle-aged and elderly, children escaping with only a few exceptions; while in the epidemic of 1904–05 children were the chief sufferers. The main difficulty at first was that of diagnosis to separate true influenza from colds and catarrhs of various organs of the body. The method adopted was that of exclusion and was perhaps the best short of examining the bronchial secretion of every patient bacteriologically. The majority of cases in the recent epidemic in Edinburgh occurred during the 30 days from mid-January to mid-February. The onset was gradual, beginning in the last weeks of December and ending at the close of February—a period altogether of about eight weeks. As regards etiology, most writers were agreed that the disease was due to Pfeiffer's bacillus. Leichtenstern distinguishes between true epidemic influenza due to Pfeiffer's bacillus and pseudo-influenza, which is commonly called "grippe," of unknown etiology. The epidemics which came most under Dr. Dewar's notice occurred at the close and at the beginning of the year. In recent epidemics three principal types were noted: (1) cardiac and pulmonary, (2) gastro-intestinal, and (3) nervous. Each case presented symptoms common to all, yet there were predominating symptoms sufficiently well marked in order to classify them. The diagnosis was arrived at by considering the manner of onset, temperature, facial expression, erratic pulse, dry brownish tongue, &c. Coryza was not frequently observed as is stated in text-books; it was more frequently absent than present. In the cardiac and pulmonary types both sexes of adults and children were fairly equally attacked. In the cardiac cases the temperature varied from 99° to 102·5° F. for the first three days; then it ranged from 99° to 100° for about a week, becoming normal after another week. The heart was feeble and irregular, with frequently a soft-blowing mitral systolic murmur, while the pulse was quick, soft, and compressible. Usually a dry cough accompanied the attack. In pulmonary cases, usually bronchial, the temperature was, as a rule, higher—104° and upwards. A typical cardio-bronchial case was recorded the chief features of which were sudden onset, severe headache, and pains in the chest and shoulders; a temperature of 104·5°; a sharp rapid pulse of 140; and respirations of 20. At first nothing abnormal was found in the chest; then pains developed in the stomach, under the left arm, and over the right shoulder; there were no rash and no diarrhœa; the tongue was dry and brown with a darker band down each side. The latter sign was very characteristic. The temperature continued very irregular from 100° to 104·5°; it was not of the swinging type as in gastro-intestinal cases but often reached the maximum in the morning and the minimum in the evening. After four days bronchial symptoms appeared with the moist sounds over the left lung behind. These symptoms continued for the next ten days, after which the temperature fell to 99° and 100°, with an occasional leap to 103° or 104° for a few hours, and by the twenty-first day the temperature had become normal. The gastro-intestinal type was observed chiefly amongst children, the prominent symptoms being abdominal pain with diarrhœa coming on four or five days after the onset. In these cases the temperature was swinging and more regular as regards morning and evening than the cardiac form. A very characteristic symptom in this form was pain in the right hypochondriac region just over the liver and over the right shoulder. Diarrhœa with stools of a greyish-green colour with little green masses like discs of sulphate of iron scattered through them usually commenced about the fifth day and convalescence was initiated about the tenth or twelfth day. The nervous type was almost confined to adults of both sexes. The prominent symptoms were intense frontal and biparietal headache, conjunctival and nasal catarrh (more frequent in this type), pains, and great depression of spirits. The temperature never exceeded 103·5° and reached this only during the first two or three days. This was followed by a sudden drop to subnormal, 97° or 96·5°, rarely rising morning or evening for from a week to ten days. As a rule the patients were very ill during this period but improved as the temperature rose to normal. Convalescence was usually protracted. A case of a mixed type in an elderly female was recorded. The sequence was: influenza, pleurisy on the seventh day, pneumonia on the thirteenth day, sepsis on the thirty-fourth day, heart irregular about the fortieth day, melancholia a few days later, gastro-intestinal symptoms about the fiftieth day, and death on the sixty-ninth day from heart failure. The prognosis was generally good in the first two types but not so good in the third. Treatment consisted chiefly in good nursing and dieting. In conclusion, Dr. Dewar said (1) that influenza epidemics were shown to have been recurring every seven or eight years; (2) that they always occurred during the winter season; (3) that the period covered was from eight to ten weeks; (4) that coryza ushered in the disease in a small proportion of cases; and (5) that the gastro-intestinal forms in recent epidemics were invariably characterised by pain underneath the liver and over the right shoulder.

Mr. CAIRD read a paper on the Urine Separator of Luys. He drew attention to the care necessary in the selection of a good instrument and to the method of its employment, noting that it had to be sterilised carefully. The method of introduction in the male and female was described and the value of indigo-carmine as showing the complete separation of the urine was alluded to. Several illustrative cases were narrated as well as the results obtained.

Dr. T. D. LUKE read a paper on Post-anæsthetic Sickness: its Cause and Treatment. He pointed out that the after-sickness often constituted the most trying part of a surgical operation. The factors influencing the occurrence of after-sickness were the following: the nature of the anæsthetic used; the operation performed; its duration; the skill with which the anæsthetic is given; the care with which the patient is prepared; the patient's condition at the time of the operation as regards digestive tract, &c.; age, sex, temperament, habits, and constitution also having considerable influence in the matter. The statistics prepared by the British Medical Association anæsthetic committee were made use of together with those of Mr. Marcus Gunn. Dr. Luke found that while actual occurrence of sickness was more frequent after ether it was brief in duration and very seldom so severe as that seen after chloroform in a number of cases. About 45 per cent. of cases are sick after ether and about 20 per cent. after chloroform. Chloroform sickness is due to the markedly inhibitory action of chloroform on the metabolic processes and may be regarded as a mild kind of chloroform toxæmia of a sub-acute nature where the toxic action of the drug does not go so far as to produce the gross cellular stages described by Guthrie, Stiles, and others. Dr. Luke stated that sickness after ethyl chloride occurred in from 15 to 20 per cent. of cases and found that statements made as to sickness being more severe after mixtures and sequences, such as ethyl-chloride-ether sequence and ethyl-chloride-C.E. sequence, were not based on fact but on prejudice, and in support of his remarks gave the personal opinions of Dr. F. W. Silk,

Mr. Bellamy Gardner, and other authorities. The effect produced by "mixed drinks" at a banquet could not be regarded in any way as analogous. Ethyl chloride formerly always existed to the extent of a small percentage in well-known brands of chloroform and of late years was being added in order to hasten the induction of anæsthesia. It was therefore absurd to suppose that the effect produced by the drug *in sequence* could materially differ from the effect when *in mixture*. The influence of the various operations was dealt with in detail and as regards age young people from 12 to 15 years old were found to suffer most frequently from after-sickness, the rate of frequency steadily diminishing from the fifteenth to the eightieth year. Females were more often troubled with sickness than males in the proportion of five to four. As regards treatment little was to be done. Drug treatment was merely palliative, the measures advocated in text-books being practically useless. Drinks of warm or hot or effervescing waters were of service, as was albumin water. In bad cases washing out the stomach was of great use. Deprivation of fluids after operations was often a mistake and overdone. Patients had a natural thirst after purging and loss of blood which should to some extent be gratified. The rational line of treatment lay in stimulating the skin, kidneys, and bowels to throw whatever anæsthetic was used out of the body tissues as soon as this could be effected.

Reviews and Notices of Books.

Handbuch der Geburtshülfe. (*Handbook of Midwifery.*) Edited by F. VON WINCKEL. In three vols. Vol. I., Second Part. With numerous plates and illustrations. Wiesbaden: J. F. Bergmann. Glasgow: F. Bauermeister. 1904. Pp. 643. Price 13*s.* 9*d.*

A NOTICE of the first volume of this handbook appeared in THE LANCET of Feb. 27th, 1904, p. 583, and, as we pointed out at the time, the fact that it is edited by Professor von Winckel is a proof that it is a work of the very highest importance and value. The second volume more than sustains the high opinion that we formed of the first and contains a great deal of information of the utmost value. It is devoted to a consideration of the physiology and dietetics of pregnancy and the physiology and dietetics of labour. The word "diätetik" in German means rather more than we are accustomed to assign to it in English, for under the dietetics of pregnancy are included the treatment of the minor disorders of that condition and the preparation of the patient for labour. The dietetics of labour, too, include the avoidance of rupture of the perineum and the treatment of the umbilical cord after the delivery of the child.

The first chapter by F. Skutsch is concerned with the Examination of the Pregnant Patient. It contains a very good account of the various methods of external and internal examination, the diagnosis of pregnancy from other conditions simulating it, the important points in the diagnosis of a first and of subsequent pregnancies, and the determination of the period of pregnancy and of the size of the child.

P. Strassmann has written the second chapter on Multiple Pregnancies and discusses not only their mode of development but also many questions connected with the various pathological states which may be associated with, or may be dependent upon, the presence of such a condition. The interesting question of the relationship of the occurrence of multiple births to the general fertility of women is considered as also are the effect of heredity, and the relationship between the frequency of twin pregnancies and that of triplet or quadruplet. The author calls attention to various facts which suggest that tendency to multiple births shows an atavistic attribute in the human race, citing amongst other things the disproportionately frequent association with it of polymastia and its more frequent occurrence in animals low in the scale of development.

The section dealing with the Treatment of the Minor Disorders of Pregnancy is contributed by von Herff; and E. Bumm writes on the Preparation of the Patient for Labour. In the second portion of the book O. Schaeffer describes the nerve centres of the uterus, the expulsive forces, the resistances, and the course of labour. The description of the bony pelvis and the soft parts is by H. Sellheim and is full and very well illustrated. At the end of the chapter on the Attitude, Presentation, and Position of the Fœtus Seitz concludes that its attitude and position are primarily due to the form of the uterus and its activity; whilst the frequency of vertex presentations depends chiefly on the relationship between the shape of the uterus and that of the child, the direction in which the uterine forces act, the great mobility of the fœtal head, and the preponderance in size of the upper uterine segment over the lower segment. Eighty pages are devoted to the section on the Mechanism of Labour written by M. Stumpf and he gives a very voluminous literature of the subject.

O. Sarwey writes Chapter VIII. dealing with the Diagnosis and Conduct of Labour and also treats of the prevention of tears of the perineum and the ligature and treatment of the cord after the delivery of the child. In discussing the question as to whether the antiseptic or aseptic management of labour is the better K. Menge declares in favour of asepsis. He holds that the untouched genital canal is aseptic and requires no disinfection and that the antiseptic treatment of labour is under all conditions objectionable. He believes it will only be by the strict avoidance of infection of the hands, by abstinence from midwifery practice when the hands have been infected, and by the immediate stopping of any such practice in cases where any patient develops signs of septic infection, combined with rational disinfection of the hands and the use of sterile coverings for them, the avoidance of any unnecessary interference with the patient, and the careful sterilisation of all the materials used, that the danger of infecting lying-in women with puerperal fever will be avoided.

A very interesting contribution is that of G. Klein on Walcher's position. He gives a historical sketch of the subject and discusses fully the advantages to be obtained from its use in cases of difficult delivery. There is no part of the management of labour in which so many mistakes are likely to be made as in that of the third stage. The tendency is to express the placenta too soon after the birth of the child and this practice frequently leads to the retention of some portion of the placenta or membranes. A. Lindfors gives a very interesting account of the four chief methods of treating this stage and sums up in favour of the so-called Dublin method. The last chapter in the book is by P. Strassmann and in it he considers the progress and course of labour in multiple pregnancies including the various abnormalities which may be met with.

As we have said, the present volume fully comes up to the high standard of the first. The book is the most important work which has appeared for some years on the subject of midwifery and when completed will form a handbook of the greatest possible value and one that will be indispensable for every teacher of this branch of medicine.

Exercises in Practical Physiology. By AUGUSTUS D. WALLER, M.D. Aberd., F.R.S. Part II., Exercises and Demonstrations in Chemical and Physical Physiology. By A. D. WALLER and W. LEGGE SYMES. London: Longmans, Green, and Co. 1905. Pp. 79. Price 2*s.* 6*d.* net.

THESE exercises consist of eight chapters dealing successively with the blood, circulation, carbohydrates and salivary digestion, proteids and gastric digestion, fat and pancreatic digestion, milk (bile and muscle), urine, and respiration. This little work forms a companion to the

author's systematic work, to which reference is made and from which some of the illustrations are reproduced. On the whole the experimental part seems to us to be fuller than the more purely chemical sections. All the directions are precisely given and can be easily followed by the student in the laboratory. Students who have to present themselves for a practical examination involving the subjects discussed will find this book useful and so also will students in a properly equipped laboratory. Naturally, a fair number of the experiments must be in the nature of demonstrations by the teachers rather than the actual work of the student of physiology. In these cases this is stated and full details are given.

Methods of Morbid Histology and Clinical Pathology. By I. WALKER HALL, M.D. Vict. (Manchester), and G HERXHEIMER (Wiesbaden). London and Edinburgh: W. Green and Sons. 1905. Pp. 290.

A BOOK of this type, designed for the requirements of students and pathologists working in hospitals and institutes, makes no claim to originality. Indeed, it consists largely of recipe methods taken from well-known text-books, while the authors state in particular their indebtedness to the work of Schmorl—i.e., "Die Pathologisch-Histologischen Untersuchungsmethoden." Of this work, the second edition (1901) is before us. The authors state that the details of methods they record were, except in a few cases, obtained from the original papers and a list of papers is appended. As one of the authors was assistant to the late Carl Weigert for several years it is appropriate that their book is dedicated to his memory.

There is nothing new in the chapters devoted to the examination of fresh objects, freezing, fixation, hardening, and decalcification; nor, indeed, is there in those on imbedding, sectioning, clearing, mounting, or staining. Substantially the same methods are applicable to normal animal histology and are to be found in text-books on that subject. In the chapter on special cell and tissue structures the methods are in some respects like those adopted in Schmorl's work in the chapter dealing with methods for demonstrating special constituents of cells and tissues.

In Chapter XII. special tissues and organs are dealt with and that on the nervous system is naturally crowded; in fact, there are too many methods bearing the names of their authors—modifications of some fundamental method. It would have been better had the authors been able to give the aspiring tyro some definite statements as to the comparative virtues of these modifications.

The methods regarding bacteria, moulds, and other fungi, and animal parasites occupy more than 30 pages, while to clinical microscopy eight pages are given. It will be seen that the word "clinical pathology" is taken in a somewhat restricted sense; and only those methods which a pathologist may require during his routine work are given.

The book will be found useful for reference but the student may have difficulty in knowing which of the numerous methods he ought to select.

Health and Disease in Relation to Marriage and the Married State. Edited by Geheimer Medizinalrat Professor Dr. H. SENATOR and Dr. Med. S. KAMINER. The only authorised translation from the German into the English language by J. DULBERG, M.D. Würzburg, of Manchester. London and New York: Rebman, Limited. Vol. II., pp. 777. 1905. Price, for two vols., 30*s.* net.

IN our issue of Oct. 8th of last year we reviewed the first volume of this work. The second volume is now before us; it is divided into 14 chapters which treat respectively of (XIV.) Gonorrhœal Diseases in Relation to Marriage; (XV.) Syphilis in Relation to Marriage; (XVI.) Diseases of the Skin in Relation to Marriage; (XVII.) Diseases of the Organs of Locomotion; (XVIII.) Diseases of the Eyes, with special regard to Heredity; (XIX.) Diseases of the Lower Urogenital Organs and Physical Impotence; (XX.) Diseases of Women, including Sterility; (XXI.) Diseases of the Nervous System; (XXII.) Insanity in Relation to Marriage; (XXIII.) Perverse Sexual Sensations and Psychical Impotence; (XXIV.) Alcoholism and Morphinism in Relation to Marriage; (XXV.) Occupational Injuries in Relation to Marriage; (XXVI.) Medico-Professional Secrecy in Relation to Marriage; and (XXVII.) the Economic Importance of Sanitary Conditions.

The section on gonorrhœal diseases is from the pen of Professor A. Neisser of Breslau. It is, we think, the most important in this volume and is well worthy of study. Professor Neisser points out that there is hardly another disease dealt with—not even syphilis—that has such far-reaching and momentous consequences for the married state as gonorrhœa. The dangers to the female emanating from chronic gonorrhœa in the male are brought as prominently forward as they deserve to be. The teaching is that when marriage is contemplated, as all post-gonorrhœic residual affections are not infectious, it is necessary to subject every individual who presents any abnormal symptoms derived from a former gonorrhœa to a special examination for the purpose of ascertaining whether these symptoms are still of an infectious nature. The examination for gonococci alone enables the physician to say whether marriage should be permitted and this examination should be made as searching as possible. In the case of men it is necessary to examine not only the superficial secretion of the anterior urethra and that of the posterior urethra—if possible separately—but to endeavour to bring to light the secretion situated in the crypts between the folds of the urethral mucous membrane and to examine it. Careful search must be made for the existence of preputial and para-urethral passages, of fistulæ and small abscess-cavities. In special cases it may be necessary with the help of the endoscope to look also for gland-like epithelial swellings lying in the urethra. Professor Neisser examines every case of chronic urethritis by means of Gram's method, and when the question of marriage is under consideration he makes use of the cultivation-method also.

The chapter on Medico-Professional Secrecy is written from the point of view of a German medical practitioner and is, therefore, not applicable to English and American conditions, but it is interesting reading. The diversity of medical practice very often places medical men in the unpleasant situation of having to choose between the injunctions imposed upon them by the different laws and the dictates of their own consciences. In Germany the law admits of no exceptions and a medical man has no right to divulge what has become known to him in his professional capacity, no matter how serious the consequences may eventually turn out to be.

Dr. Dulberg is to be congratulated on having completed his task and on having given us a translation of the most comprehensive work on a subject which is of interest to every practitioner.

Report of the Board of Agriculture and Fisheries for 1904. London: Darling and Son. Price 11*d.*

THE report of the work done by this department of the Government is one of the most hopeful which has been issued for some years. Mr. Cope, M.R.C.V.S., the chief veterinary officer, is able to congratulate the country on the success which has prevailed in regard to certain cattle scourges, particularly foot and mouth disease and pleuro-pneumonia, neither of which, we hope, will ever reappear in Great Britain. Swine fever, too, is on the decrease, although still far too widespread and met with in very

many counties. A report of the latest commission appointed to inquire into the pathology, and so on, of the disease has been promised shortly. Anthrax is largely increasing and one factor in its spread is the habit, through ignorance of the methods of propagation of the disease, on the part of the average farmer of opening the carcass of a cow (which has died suddenly) to try to find out the cause. If instead of doing this he would report to the local veterinary authority fewer cases would occur as a sequel to the first death.

Episoötic lymphangitis, which has been imported into England with the returned army horses from South Africa, has, on account of its tedious course when treated and its contagiousness, caused the Government to issue a pamphlet to every member of the veterinary profession in the British Isles. This pamphlet describes the differences between this disease and farcy. Glanders is admittedly on the increase and it is time that some radical measures were taken to control this disease. In 1894 there were only 502 outbreaks reported but in 1904 these had increased to 1529 and 2658 horses were killed as glandered. More power ought certainly to be given to the veterinary inspectors to test the in-contact horses with mallein, as by this agent an almost infallible diagnosis can be made within 24, or at most 48, hours. The expense, although great the first year, would not be excessive if allowed to be spread over a period of years; and where a preventable disease, which also causes the deaths of numbers of human beings each year, is concerned, the cost ought certainly not to be considered too seriously as a reason why it should not be taken thoroughly in hand. Sheep scab is favourably reported upon and rabies is non-existent. The latter is a cause for much congratulation and it is to be hoped that the present successful measures will be continued. Many other diseases are touched upon and the book is well worth a place in the library of everyone who is interested in the subject of the diseases of animals.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by Sir MICHAEL FOSTER, K.C.B., F.R.S., and J. N. LANGLEY, F.R.S. Vol. XXXII., Nos. 3 and 4. May, 1905. London: Cambridge University Press Warehouse. Pp. 127. Price 8*s.*—This part contains the following articles: 1. The Fractional Hydrolysis of Optically Inactive Esters by Lipase, Part II., by H. D. Dakin. 2. Observations upon Fibrin Ferments in the Venoms of Snakes and the Time Relations of their Actions, by C. J. Martin. 3. On the Formation of Fatty Acids from Lactic Acid when fused with Caustic Alkalies, by H. S. Raper, 1851 Exhibition Scholar. 4. Note on Neumann's Method of estimating Chloride, by W. Legge Symes. 5. The Regulation of the Lung Ventilation, by J. S. Haldane and J. G. Priestley, with 11 figures in the text. The authors show that at a constant atmospheric pressure the air in the alveoli of the lungs contains a practically constant percentage of carbon dioxide but in different individuals this percentage differs. Within limits with varying atmospheric pressure the alveolar percentage varies in each individual inversely as the atmospheric pressure, so that the alveolar carbon dioxide pressure is constant while the oxygen pressure varies widely. The respiratory centre is exquisitely sensitive to any rise in the alveolar carbon dioxide pressure, a rise of 0·2 per cent. of an atmosphere being sufficient to double the amount of alveolar ventilation. When the oxygen pressure in the inspired air falls below about 13 per cent. of an atmosphere the respiratory centre begins to be excited by want of oxygen. During muscular work the alveolar carbon dioxide pressure is raised slightly with a corresponding large increase in the lung ventilation. The amount of air breathed per minute and per unit of body varies widely in the same individual and still more widely in different individuals. 6. The Separation of Proteids, by H. C. Haslam, formerly John Lucas Walker student. 7. On the Products of Digestion of the Proteolytic Enzyme of the Spleen acting in an Alkaline Medium, by E. P. Cathcart. 8. The Effect of Cold Narcosis on Reflex Action in Warm-blooded Animals, by Sutherland Simpson and Percy T. Herring. 9. The Effects of Acids upon Blood, by Charles E. Ham and Hermann Balean. 10. Observations on the Munchi Arrow Poison, by Alfred Fröhlich. The Proceedings of the Physiological Society for Feb. 25th and March 18th are also contained in this part.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

EUDRENINE.

(PARKE, DAVIS, AND CO., 111, QUEEN VICTORIA-STREET, LONDON, E.C.)

EUDRENINE is described as a local anæsthetic and hæmostatic for the painless and bloodless extraction of teeth and for use in general surgery. It contains in each cubic centimetre 0·01 gramme of the anæsthetic beta-eucaine hydrochloride and 0·033 milligramme of the powerful hæmostatic adrenalin chloride (Takamine). For tooth extraction eudrenine is used undiluted by injecting into the gum ten minutes before operating the contents of one or two "ampoules," equal to eight or 17 minims, according to the number of teeth to be extracted. For small surgical operations eudrenine is used undiluted but when a large area is required to be anæsthetised it is diluted with four volumes of "physiological" sodium chloride solution. The advantages of beta-eucaine over cocaine are well known and the object of combining it with adrenalin is to contract the blood-vessels so that not only is the action of the anæsthetic localised but the operation may be performed without bleeding. The result is that only a small quantity of the anæsthetic is required.

(1) SUGARLESS JAM; AND (2) STARCHLESS BISCUITS.

(CALLARD AND CO., 74, REGENT-STREET, LONDON, W.)

According to our examination both of these preparations may be given to patients in whose cases sugar is prohibited. In the jam we found a trace of sugar which, according to the phenyl-hydrazine test, appeared to be milk sugar, since the small quantity of crystals produced had the characteristic appearance of lactosazone. There was also a slight reduction with Fehling solution. The jam is sweet to the taste owing to glycerine and has the consistence of ordinary jam. The flavour of the sample submitted to us was that of black currant. The colouring is rather brilliant but of a harmless kind. The biscuits gave absolutely negative evidence as regards the presence of starch, the chief constituent being proteid which to some extent is soluble in water. Reactions were obtained with the solution characteristic of milk proteid.

PURE GRAPE PORT.

(HUNT, ROOPE, TEAGE, AND CO., OPORTO, AND 3 AND 4, WATER-LANE, GREAT TOWER-STREET, LONDON, E.C.)

This is an undoubtedly genuine port wine and as the following analysis shows is of a robust and an invigorating character. It is more suitable for invalid purposes than as an after-dinner wine. The analysis was as follows: extractives, 14·30 per cent.; mineral matter, 0·25 per cent.; sugar, 12·50 per cent.; volatile acidity reckoned as acetic acid, 0·066 per cent.; fixed acidity reckoned as tartaric acid, 0·21 per cent.; and alcohol, by weight 19·58 per cent.,

by volume 23·98 per cent., equal to proof spirit 42·03 per cent. The wine has a strong, fruity flavour. As will be seen from the above figures it is made from rich grape juice containing an abundance of saccharine matter, the grape sugar amounting to as much as 12·50 per cent. The mineral matter contained a noteworthy amount of phosphates. It is a rich, "full" wine.

CANDOL.

(CANDOL DEPOT, 20, EASTCHEAP, LONDON, E.C.)

Candol consists of a practically dry, granulated or crystalline extract of malt. We have not examined a dry extract of malt possessing such powerful diastasic activity. It rapidly converts starch jelly into a limpid fluid and finally into maltose. It is capable of dissolving its own weight of starch in a few minutes at blood heat. The convenience and advantage of an active malt extract in dry granulated form are obvious.

FRUCTOLE OF RED BONE MARROW AND GLYCERO-PHOSPHATES.

(SAVORY AND MOORE, 143, NEW BOND-STREET, LONDON, W.)

The formula of this compound is an illustration of the advantages of utilising quite modern chemical and physiological knowledge. It contains phosphates in a form known to be assimilable in combination with iron and calcium and the powerful nutrient substance, red bone marrow. One ounce contains the equivalent of one drachm of red bone marrow, two grains of iron glycerophosphates, and four grains of calcium glycerophosphate. It is prepared with a fruit basis, glycerine being substituted for sugar. The flavour is pleasant. This "fructole" is, in short, an elegant pharmaceutical preparation; it keeps well and contains substances which are of well-known tonic value and which are readily utilised. "Fructoles" are also prepared of the hypophosphites, of the glycerophosphates, and of terpin and heroine.

SCOTCH WHISKY BLUE SEAL.

(HENRY SIMPSON AND CO., 6, CROSBY-SQUARE, LONDON, E.C.)

The indications of our analysis are distinctly in favour of this spirit being genuine malt whisky. Moreover it evidently possesses considerable age, for the flavour is that of a well-matured whisky. Analysis gave the following results: alcohol, by weight 38·83 per cent., by volume 46·08 per cent., equal to proof spirit 80·75 per cent.; extractives, 0·19 per cent.; and fixed acidity reckoned as tartaric acid, 0·015 per cent. The secondary constituents, or "non-alcohols" as the French chemists now term them, were as follows, given in grammes per hectolitre of alcohol present: volatile acidity reckoned as acetic acid, 26·00; aldehydes, 14·30; furfural, 2·17; ethers reckoned as ethyl acetate, 90·00; and higher alcohols, 217·00: total secondary products, 349·47. These results are in accordance with those commonly obtained with genuine old malt whisky. It may be remarked, however, that the amount of furfural is somewhat below the normal, possibly owing to the age of the spirit. Storage in sherry casks was indicated by the presence of a trace of sulphates. The flavour is mild but distinctly malty in character.

DRIED MILK.

(THE CREAMERY CO., GARSTANG.)

This is practically milk in which the entire solid constituents are retained, water only having been abstracted by a process of evaporation. Our analysis of the dry milk was as follows: fat, 30·0 per cent.; proteid, 28·66 per cent.; milk sugar, 35·34 per cent.; and mineral matter, 6·00 per cent. The powder occurs in a light, dry, crisp, flaky form. With water it yields a fluid closely resembling milk in appearance but with the fat separated. It is evident from the above analysis that the process secures the retention of the whole of the cream of the original milk. The preparation is obviously valuable for ordinary as well as special dietetic purposes.

(1) LAGER BEER; AND (2) SPECIAL STOUT.

(S. ALLSOPP AND SONS, BURTON-ON-TRENT.)

That a large firm of brewers should add to their business that of brewing light beer on the continental, or what is known as the low fermentation, system may be taken to indicate an increasing demand on the part of the English public for lighter malt liquors. Allsopp's lager beer shows pretty much the same composition as the light beers brewed in Germany and elsewhere. Our analysis was as follows: alcohol, by weight 3·41 per cent., by volume 4·28 per cent., equal to proof spirit 7·49 per cent.; extractives, 4·45 per cent.; mineral matter, 0·17 per cent.; sugar, 0·74 per cent.; and volatile acidity reckoned as acetic acid, 0·078 per cent. It is thus a light, sound, clean beer with low alcoholic strength. It is agreeably and delicately bitter to the taste, but of course it should be kept cool and drunk cold, otherwise the peculiarly attractive flavour of beer brewed with bottom yeast is lost. The stout gave the following results on analysis: alcohol, by weight 6·71 per cent., by volume 8·36 per cent., equal to proof spirit 14·66 per cent.; extractives, 6·67 per cent.; mineral matter, 0·33 per cent.; sugar, 0·357 per cent.; proteid, 0·52 per cent.; and volatile acidity reckoned as acetic acid, 0·024 per cent. The stout was in excellent condition, free from an excess of carbonic acid gas and from the slightest sourness. The flavour was soft and decidedly malty. The stout answers the description of a malt liquor which is least likely to disturb digestion, since investigation has shown that acidity in beer and a large excess of gas are apt to have a retarding effect on digestion and to give rise to an acid condition of the contents of the stomach.

ROBORAT.

(THE ROBORAT CO., 27A, ST. MARY-AT-HILL, LONDON, E.C.)

The principal constituent of roborat, it is said, is pure unaltered vegetable albumin obtained from the seeds of cereals. It is a fine dry powder with a colour resembling oatmeal. It has the peculiar property of swelling up in water which is the characteristic behaviour of fresh albumin and at the same time a frothy liquid is obtained on shaking just as when egg albumin is similarly treated. Our analysis gave the following results: albumins, 79·02 per cent.; carbohydrate, chiefly starch, 5·78 per cent.; oil, including lecithin, 4·80 per cent.; mineral matter, 2·00 per cent.; and moisture, 8·40 per cent. Cold water extracted 6 per cent. of the powder, the extract consisting chiefly of soluble albumins. Alcohol and ether readily extracted lecithin. The mineral matter contained chiefly the phosphates of the alkaline earths. Roborat appears to be of decided value in the dietary of invalids. It is, of course, a powerful tissue-former, the albumins which it contains being readily digestible according to experiments made *in vitro*. In addition it contains an important proportion of lecithin which, as is well known, has a favourable influence on nutrition.

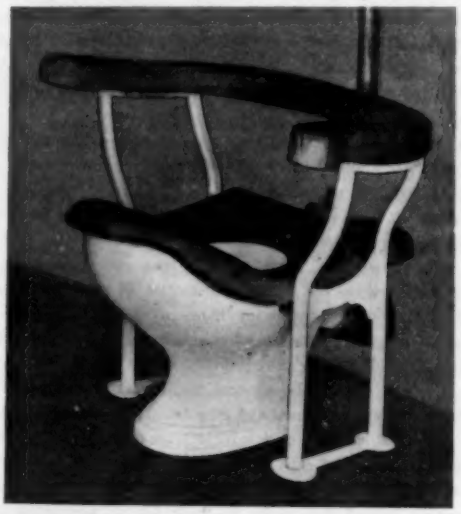
THE SALE OF POISONS AND DRUGS.—An official report on Indian legislation in 1904 mentions that an Act passed by the council of the Governor-General provided for the control of the sale of poisons generally within municipalities and cantonments, authorised the prohibition of the importation of white arsenic into British India except under licence, and empowered local governments to regulate the sale of that poison. The Act also took powers for the Governor-General in council to apply to any other poisons the provisions relating to white arsenic. Protection was secured for acts done in good faith by medical men, druggists, and others. The Legislative Council of Burma passed an Act enabling the Local Government to make, by proclamation, additions to the list of intoxicating drugs of which the sale and possession may be restricted under the provisions of the Excise Act, 1896. The circumstances which led to this legislation were the large increase in the sale of cocaine in Rangoon and the noxious results found to be attendant on the use of the drug.

New Inventions.

TWO NEW WATER-CLOSETS.

(1) THE "NATURAL" WATER-CLOSET AND SEAT.

IT has been said that not a few human disorders, and more particularly those connected with the abdominal region, arise from the unnatural attitude commonly adopted by civilised man in the act of defæcation. The defects from an anatomical point of view of the ordinary water-closet pedestal and seat in general use are so well known and recognised that only the advent of a really scientifically designed closet-seat justifies the re-discussion of the question. The leading text-books on physiology are silent on the important part that position plays in the act of defæcation; it is, of course, interesting to the student to be aware that centres inhibiting the ano-spinal centre are situated in the base of the thalami and the upper end of the crura cerebri, but the important differences between the seated position for the evacuation of the bowels and the squatting posture are not considered. Mr. W. Arbuthnot Lane in his teaching on chronic constipation has forcibly pointed out how in the act of defæcation, in our present state of civilisation, the cæcum is driven downwards and forwards into the true pelvis, tending to drag and to displace downwards the right kidney, the individual losing in the sedentary position the enormous pressure afforded by the forcible apposition of the thigh and abdomen, which is exerted when the squatting position of uncivilised life is assumed. Not only does this squatting posture help to empty the cæcum and ascending colon but it tends to retain, both directly and indirectly, the kidney in its normal relationship. It also serves to displace the sigmoid upwards and facilitates the evacuation of its contents. The outline and general appearance of the "Natural" water-closet designed by Messrs. D. T. Bostel and Sons of 73, Ebury-street, London, S.W., are very well conveyed in the accompanying illustration, in which the closet is shown provided with a "lift up"



The "Natural" Water-closet and Seat.

lid and two arm rests. The height of the arms in relation to the seat renders the squatting attitude comfortable and secure. The arms are about two feet from the floor, while the lowest part of the seat is about nine inches from the floor, and the front part of it six inches higher. The posture compelled upon the user of the closet is practically identical with that assumed naturally when there is no other convenience for the purpose than the field. The peculiar construction of the pan is of great assistance to the effect of flushing, the water sweeping everything before it, and the "lift up" lid enables the pan to be used as a urinal or for the reception of slop waters. Altogether the design appears to be in conformity with the anatomical posture and requirements of the body during the act of defæcation and its use is calculated to obviate that habitual straining at stool which undoubtedly is frequently a source of abdominal mischief, as, for example, hernia.

This invention will be shown in practical working order at the forthcoming exhibition of the British Medical Association at Leicester, July 24th to 28th.

(2) THE "NATURAL" SANITARY CLOSET.

THE "Natural" sanitary closet, which is the invention of Mr. E. A. Rawlence, of Newlands, Salisbury, was brought to our attention at the same time as the water-closet noticed above and the claims made for its use are almost identical. The benefits of the squatting position during the act of defæcation are described by the inventor, upon medical authority, as follows:—"The lower bowel is, in a healthy subject, self-cleansing, as in other animals. When in the natural position for defæcation the abdomen rests upon the closed thighs which support it and lessen the risks of hernia. The mechanical process of defæcation cannot take place properly while the body is in the upright sitting posture when the whole weight compresses the buttocks against a seat." The "Natural" sanitary closet is designed to meet

"Natural" sanitary closet. The flap is fastened to the side walls, where also are handrails which are not shown in the illustration.

all these disabilities. It is so shaped and of such a height as to allow defæcation to take place in an absolutely natural position in adult or child, children being especially tried by the usual shape of water-closet which allows their feet to dangle. In cases of infirmity or old age where the natural position may be difficult or impossible a specially designed flap seat can be provided so that a natural position may be attained as nearly as possible and handrails are provided to assist the user in rising from so low a position. The flap seat is so designed that it cannot well be fouled and when not in use it is fastened up to the sides of the closet. The seat slides on an iron rod fixed at a considerable angle so that when fixed full forward for an adult it is 17 inches high and when set back for a child it is 15 inches high. Sliding or revolving blocks four inches high are also provided for children using the closet in the natural position. The "Natural" sanitary closet also provides a convenient urinal and slop waste. The usage of the ordinary closet for these purposes is a frequent cause of fouling the seat. The "Natural" sanitary closet is designed to provide the same medical and sanitary benefits in country houses and cottages where water-closets are not possible and can be adapted either for a vault closet or earth system.

This invention will be exhibited at the ensuing exhibition of the Royal Institute of Public Health at the Polytechnic from July 19th to 29th.

THE LANCET.

LONDON: SATURDAY, JULY 15, 1905.

The Sleeping Hours of Schoolboys.

IN the present strenuous age of hurry and bustle there is a tendency to begrudge an expenditure of time upon such apparently unprofitable things as rest and recuperation, and for the busy man as well as for the pleasure-seeker the hours devoted to sleep are cut down to the irreducible minimum. We have heard of a society in America the members of which bound themselves to curtail more and more the period of slumber till most of them managed to do with only four or five hours in the 24. It was never recorded, so far as we know, what was the average life of these poor victims. Our ancestors had an adage that six hours' sleep was the proper quantity for a man, seven for a woman, and eight for a fool. Whether it is that the strenuous life of the present day is akin to foolishness or whether it is a simple phenomenon of evolution, it is certain that many of our busiest men find the last-mentioned allowance none too long for them. The quality of a man's work soon deteriorates if he takes insufficient rest and a regard for real as contrasted with apparent profits should compel attention to considerations of health. But if sleep is requisite for the adult, how much more so is it indispensable for growing children? Rapid growth and the abundant energy characteristic of the young imply rapid multiplication of cells and renovation of tissue, and sleep is the time for both growth and repair. Yet it is a feature of child life to which our educational authorities seem to have paid but little attention. Here, as in other educational matters, America is ahead of us, much more adequate periods of rest being allowed in the schools in the United States than in this country. Dr. T. D. ACLAND has done good service in calling attention to the subject in his paper read before the Medical Officers of Schools' Association, which appears at p. 136 of our present issue. He has collected a mass of weighty opinions which should carry conviction to his hearers and readers. It is, perhaps, not very easy to lay down definite rules which shall apply to all children even at the same age, since individuals differ in this as in other respects. But there seems to be a striking agreement among medical and scientific writers that at present we err on the side of deficient allowance of sleep.

Schoolboys may be roughly divided into those of public school age and those still in the preparatory stage, the latter being between the ages of nine and 13 and the former from 12 to 18 years. For little boys who have just left home for the first time ten hours of sleep are probably none too much, and this amount would be obtained pretty accurately by insisting upon their going to bed at 9.30 and having breakfast at 8. The elder boys still at a private school might be allowed to sit up until 10 o'clock. At public schools 10 P.M. is probably the usual, and certainly a convenient, time for bed, and only the upper forms should be allowed to postpone the time of "lights out" to any later hour. Breakfast could here be at 7.30 without undue stress of work. Of course it must be recognised that all the time between the hour of going to bed and that of breakfasting is not spent in actual sleep, so that in order to secure as much sleep as possible it is necessary, at all events with younger boys who occupy dormitories in common, to prevent talking and "skylarking" going on when the lights are out. It is also advisable to arrange that younger and older boys do not share the same sleeping rooms, lest the little ones, who go to bed early, may be disturbed by the subsequent entrance of the seniors. Very closely connected with the question of sufficient sleep is that of lessons before breakfast, and we are strongly of opinion that it is wrong on physiological grounds to expect boys to start brain-work in the early morning on empty stomachs. Breakfast should be the first event of the day and should be followed by a short interval, for obvious reasons, before assembly in the class-rooms. One of the most important features of education is the inculcation of good habits which soon become a second nature. Sleep indeed itself, as pointed out by Dr. T. B. HYSLOP, is to some degree a matter of habit, but it is doubtful how far it is one which need be much impressed upon children who seldom sleep badly unless they are definitely ill or overworked. The occurrence of sleeplessness in them is always a symptom which needs careful attention as it may afford a danger signal pointing to the onset of nervous maladies or to the existence of over-pressure in school work. It may seem curious that so late in the history of the world as the beginning of the twentieth century it is necessary to insist upon the allowance of proper time for sleep, but the fact may be readily explained. On the one hand, the old and not yet obsolete theory of education as a means of stocking boys' memories with as large as possible a number of facts and endowing them with certain fashionable accomplishments rather than as training the minds of the young in such a way that they may best adapt themselves to the circumstances of after life, has led to the multiplication of hours of instruction, to the neglect in many instances of the laws of health. On the other hand, it is only in recent years that these laws have been recognised by the general public with anything like intelligent appreciation, and the traditions of school life are guarded with a curiously jealous conservatism which renders change of any kind specially difficult to carry out. Hence, some of our great schools are in certain respects behind the times in their health arrangements, while parents are often sadly ignorant of all that pertains to the upbringing of children.

There are signs that the schools, especially the English public schools, are becoming awake to their shortcomings and are setting their houses in order. The chief opposition now comes from those who see in all attempts to make life at school more healthy a proof of yielding to the softer, not to say more effeminate, spirit of modern times. This cry is raised even over the question of longer hours for sleep, as Dr. ACLAND points out.

The old-fashioned virtue of early rising may be insidiously undermined, it would seem, and slothful habits induced. Perhaps it is difficult in all cases to hit the golden mean and conflicting theories take time to adjust themselves in practice. Still there is no reason why sanitary houses, proper food, and adequate sleep should have anything but a good influence upon the rising generation of young Englishmen. The tendency to spare the rod is probably carried too far in deference to false sentiment and ignorant outcry, but we do not wish to bring back the "good old" days of fighting and bullying, of semi-starvation, dirt, and cold. These may have been potent means of natural selection in their day but times are changed and other qualities are demanded than mere muscle, animal spirits, and aggressiveness. There is no evidence that the products of our public schools have less average capacity for work in the world than those of past generations, though statements to the contrary are often made. Outstanding examples may be fewer just because the general level has been raised rather than lowered, but we fancy that the total production of good is increased. At any rate, wisdom seems to lie in removing visible obstacles to physical health so far as can be done and counteracting any tendency to resulting softness, should such really exist, by other means than conditions of barbarism. Dr. ACLAND'S paper will, we hope, have the excellent result of convincing some of our scholastic authorities that a growing boy is more hungry for sleep even than for food.

Medical Students' Early Years.

THE problem of how best to regulate the early years of medical student life in London is not the least of the difficulties created by the embarrassed financial position of metropolitan hospitals and their affiliated schools. It is an educational problem of the greatest interest and importance, not only to those particularly concerned with medical education but also to the public at large. As the medical student is, so to a large extent will be the medical practitioner, and it concerns us all that the management of medical education shall tend to create from a body of high-spirited and well-informed young men a body of sensible, honest, and industrious practitioners. The needs of the exceptional student we may put on one side. It is the average young man whom we have to consider and how the highest average standard of general and of medical excellence is to be obtained. We say general excellence advisedly, for although the medical school, strictly speaking, offers nothing but medical education, yet actually each school prides itself not only on the proficiency which it offers to its members in the various branches of medical science and art but also on the spirit with which tradition and a continuous series of enthusiastic physicians and surgeons have furnished it. To impart the desirable qualities of keenness, of good sense, of responsibility, and of laudable ambition there can be no regulated system of instruction. They spring from the atmosphere of a hospital and from the imitation of fine examples. There are, and can be, no classes in manners, in kindness, and in the proper way to talk to patients. It is none the less an essential part of the medical student's education that he shall be able to watch these qualities in others and to acquire them for himself. His teachers and his surroundings, in a word, must make him not merely a competent practitioner but also an estimable man.

As many of our readers are doubtless aware, a changed arrangement of the student's preliminary years is coming about in London. A concentration of the teaching of preliminary subjects will be effected, and this is, in our opinion, desirable. Moreover, so far as some of the schools are concerned it is imperative, having regard to the curtailment of the financial help which a hospital can grant to its school. Will this scheme of amalgamation, when it has taken shape, influence in any way unfavourably the desirable effects of hospital life? We think that it will not, but we know that this view is not shared by some hospital authorities who see in the removal of the student at the beginning of his career from the influences of a hospital school a considerable source of danger. We believe that these fears are ill-founded. It must be remembered that the medical student is no longer a schoolboy, nor is he in many instances even in the same relation to his hospital that the undergraduate of Oxford or of Cambridge is to his college. A considerable proportion of the medical students in London have, in fact, passed through their undergraduate stage at Oxford or Cambridge or some other university. Yet amongst these very men, the men who have passed through perhaps their most impressionable days before they ever entered hospital, are to be found supporters as keen, as loyal, and as devoted of the hospitals to which they have attached themselves as amongst any other class of student whatsoever. It is probable that all the good influences which a hospital can exert, and these are many and real, can be, and are, as well and as successfully brought to bear upon the third-year man as upon the student who begins as well as finishes his education on the premises of a London hospital. Is it rational to suppose then that because in the future this student will have studied physics and chemistry, anatomy and physiology at the University of London, therefore when he goes through his clinical education at a metropolitan hospital, the good influences and traditions with which that hospital has enveloped so many generations of students will have an effect that is unavailing or diminished in his case?

The effects upon conduct and upon character that are wrought by the student's life within the walls of a hospital arise mostly from the nature of the work and from its tendency to make him take a thoughtful and a sympathetic view of human affairs, both bodily and spiritual. It is an effect that will be produced upon impressionable minds, a seed which will grow in the proper soil, whether it is planted to some extent from the earliest years of a medical student's life or whether, on the other hand, it is withheld until his entry into the wards only to be sown then in a fuller abundance. Moreover, it will be the duty of hospital authorities to see that the student reaps even during his preliminary years such benefits as a sense of comradeship and of belonging to an honourable institution can confer upon him. He will have joined the ranks of a hospital before his work takes him habitually to the building, and when the time comes for him to be there as dresser and as resident we have no fears that the *régime* of

the future will not afford him that opportunity for a sound development both of knowledge and of manly character which the London hospitals have so notably provided hitherto.

The Proposed National League for Physical Education and Improvement.

DURING the two and a half years which have elapsed since the publication of Major-General Sir FREDERICK MAURICE'S article in the *Contemporary Review* under the title of "National Health: A Soldier's Study," drawing attention to the deficient physique of youths presenting themselves for enlistment as recruits to the British army, few subjects have achieved a larger meed of attention than that of the supposed physical deterioration of our countrymen. In commenting on Sir FREDERICK MAURICE'S article[1] we ventured to doubt the soundness of his conclusions and to be sceptical of the existence of any progressive physical deterioration, in which we were confirmed by the report of the Inter-departmental Committee appointed to consider the question. The general conclusion of the committee was that "the impressions gained from the great majority of the witnesses examined do not support the belief that there is any general progressive physical deterioration." On the other hand, the investigations of the committee, while tending to allay anxiety in this direction, have shown that in matters of national health and physical well-being all is not well with us, and in its conclusions the committee offers some fifty suggestions for dealing with some of the more important evils, such as overcrowding, excessive infantile mortality, and the progressive urbanisation of the population. No better testimony to the value of these recommendations of the Inter-departmental Committee could be adduced than the number of movements which have been started recently by influential groups of philanthropic, scientific, and public-spirited men and women to arouse public interest with a view to insure legislative and municipal action to give effect to them.

In April of this year a meeting was held in London at the Examination Hall, Victoria Embankment, under the presidency of Sir WILLIAM H. BROADBENT, to promote the teaching of hygiene and temperance in elementary schools, to which we referred in a leading article.[2] A deputation subsequently waited upon Lord LONDONDERRY, the Lord President of the Council, to urge the importance of this matter. Again, in the *Times* of June 29th there was a note concerning the presentation of a memorial to Lord LONDONDERRY by the Anthropological Institute, and signed by others not belonging to the institute, praying that an anthropometric survey, a register of sickness, and an advisory committee to advise the Government on all legislative and administrative points concerning the public health might be established without delay, as recommended by the Inter-departmental Committee. It is difficult to over-estimate the benefits likely to accrue if these proposals are effectively carried out, and all medical practitioners will welcome the valuable information concerning anthropometric data and the increased knowledge of the incidence of disease and variation in type which are likely to ensue. The most recent movement has resulted in the formation of a league the actual title of which is not yet settled. The inaugural meeting was held at the Mansion House on June 28th under the presidency of the LORD-MAYOR, but the movement has been in progress for some time and owes its inception largely to the energy and public spirit of the Bishop of RIPON, Sir LAUDER BRUNTON, and Sir HENRY CRAIK. The main objects of the league are to arouse public interest in matters relating to the physical condition of the people generally throughout the country; to correlate and to bring into association the various agencies at present at work to diffuse knowledge of the rules of health and of domestic hygiene; to endeavour to improve the physique of the rising generation; and to form organisations for these purposes where they do not exist. The movement is, moreover, national in character, non-sectarian, and non-political, and has the support of a large number of influential men. A draft scheme of the new league has been published in which it is suggested that there should be a central administrative organisation with local branches throughout the country. Each branch is to encourage all agencies in its own district which have for their object the promotion of physical well-being, to instruct mothers in the feeding and care of their children, to see that adequate opportunities are available for open-air games and physical exercises for both boys and girls, and, in fact, to foster all efforts to improve the general health and physique of the people.

The Inter-departmental Committee insisted on the importance of promoting measures to combat that perennial source of national disquietude, the excessive infantile death-rate, which is so great that in some of the most crowded districts of London it is as high as 223 per 1000—figures which are the more disquieting when we take into consideration the fact that at present stillbirths are not registered and therefore are not included in these figures That this appallingly high mortality is due in no small measure to ignorance on the part of the mothers of the elementary rules of infant feeding and nurture few can doubt who have experience of the homes of the poor or of out-patient departments at children's hospitals. The new league will achieve a work of truly national importance if it can bring about a general diffusion of these elementary rules by skilled, tactful, and specially educated district visitors or inspectors, as is now being done in a few of the more advanced municipalities. To insist on the importance of breast-feeding of infants wherever possible, to insure the purity of the milk-supply, and to instruct the mothers in the modification and use of cow's milk for purposes of infant feeding where necessary as a substitute for breast-milk are matters of vital importance. There is nothing new or original in these recommendations which have been urged again and again, but the time would now seem to be ripe for action, and with public interest awakened in the matter the league may be able to secure legislative measures to give effect to these urgently needed reforms. We have frequently insisted on the great importance of these matters and we may quote the following paragraph from the Annus Medicus

[1] THE LANCET, Jan. 31st, 1903, p. 315.
[2] THE LANCET, April 8th, 1905, p. 939.

of 1904:[1] "The diffusion of a general knowledge of the way to live amongst the poorer classes of the population will, we think, prove the charter of the people's physical salvation and it should, too, tend after some years to make the differences between the infantile mortality of the upper and the lower classes less pronounced than is the case at the present time." The medical profession has always been active in promoting all movements tending to the improvement of the public health and the general well-being of the people and we feel sure that the new league will receive the hearty support and active coöperation of all practitioners of medicine. After all, it is public interest in these matters which must be awakened if practical results are to be achieved and it is this which the league hopes to effect. Without such general public support legislation is likely to be delayed and the evils to remain; with it we may hope for the ideal which Sir LAUDER BRUNTON held forward in his speech supporting the foundation of the league at the Mansion House, that we should have "every man, woman, and child better fed, stronger, and better educated, and with a better morality following on a better physique."

Annotations.

"Ne quid nimis."

PREGNANCY LATE IN LIFE.

THE fact that a woman may become pregnant quite late in life has long been recognised by writers on obstetric medicine; when, however, many of the so-called authentic cases are subjected to a critical examination the worthlessness of most of them soon becomes apparent. While cases have been recorded by trustworthy observers of women of 60 years or so who have borne children we must regard with much suspicion the accounts of the occurrence of pregnancy at the extraordinary age of 70 years, as in a case recorded by Haller, or the cases mentioned by Gould where the mother was respectively 73, 90, and 103 years of age. In St. Peter's Church in Oxford there is a monument bearing an inscription recording the death in childbed of a woman 62 years old. The late Dr. Fordyce Barker collected a number of these cases and met with an interesting instance in his own experience in which a woman 58 years old claimed to have given birth to a child. The death of the infant, shortly followed by the death of the mother, diverted the descent of a large property which she had inherited and gave rise to a law-suit which established the fact that the woman had not been pregnant at all but had borrowed the child for the occasion. The chances of a woman bearing children when over the age of 50 years are decidedly small and they are, of course, still less when the menopause has ensued. Of 51,229 births taking place in Berlin in the year 1898, 138, or 0·371 per cent., of the mothers were between 45 and 50 years of age, and only four, or 0·007 per cent., were over 50 years. One of the most remarkable cases of pregnancy at an advanced period of life is that recorded by Kennedy. He delivered a patient in her twenty-third pregnancy at the age of 62 years. The labour was spontaneous and the child, a healthy male, was born alive. The patient had had 21 children at full term, the last seven pregnancies occurring after the forty-seventh year and the last but one ending in a miscarriage at the age of 60 years. Menstruation had been regular up to the commencement of the last pregnancy. In Meissner's case the woman began to menstruate at the age of 20, she had her first child at the age of 47, and the seventh and last at the age of 60 years. Her periods then ceased but returned and were regular from the seventy-fifth to the ninety-eighth year; then they ceased again for five years and returned in the 104th year. Unfortunately the patient was then lost sight of. Capuron records a case of abortion at the third month in a woman 66 years old. It is, of course, not surprising to find a patient who is still menstruating becoming pregnant, even although she may be of an advanced age, but such an occurrence is much more extraordinary when the patient has ceased to menstruate. Cases, however, even of this kind have been described and the observations of Leopold and others have shown that ova may mature both before puberty and after the menopause. A further proof that the presence of menstruation is not necessary in order that impregnation may take place is afforded by the cases in which pregnancy commences during prolonged periods of amenorrhœa, and the occurrence of such cases of pregnancy shows that the discharge of ova takes place in these conditions. One of the most interesting cases of repeated pregnancies with absence of the menstrual periods is that recorded by Strassmann. The patient, a woman 45 years of age, commenced to menstruate at 16 years. The periods continued regularly until the eighteenth year when she had her first baby. From the eighteenth to the thirty-ninth year she did not menstruate at all and during this time she had 17 full-term pregnancies and a three months' miscarriage. At the age of 39 years menstruation returned and continued at regular monthly intervals until the age of 45 years. It is difficult to form an accurate estimate of the possibility of a woman becoming pregnant who has ceased to menstruate from the occurrence of the menopause. We have seen that even when the periods are still present at an advanced age the percentage of women in whom pregnancy occurs is relatively small and the chances against its occurrence are very large. A certain number of cases, however, are on record where, after the complete cessation of the periods, pregnancy has taken place. Their total number is, however, but a small one, especially if we eliminate all those in which there has been a return of the periods after the pregnancy. For example, in a case recorded by Prieu the patient had her last child at the age of 48 years. She suckled the child and saw no catamenia afterwards. 24 years later, at the age of 72, she menstruated regularly for a period of six months, the menses then ceased for eight weeks, and she had a two months' miscarriage. Underhill and Lavasseur have met with cases in which the patients, at the ages of 49 and 50 years respectively, gave birth to children, in each instance after the periods had ceased for the space of two years. A still more striking case is that related by Depasse of a woman who ceased to menstrate at 50 years and had a baby at the age of 59 years, which she weaned on her sixtieth birthday. Hann has also met with a case in which three years after the menopause a patient became pregnant, but in this instance the periods returned regularly after the birth of the child and, as we have pointed out, such cases are not quite on the same footing as those in which the periods are never seen again.

[1] THE LANCET, Dec. 31st, 1904, p. 1864.

MEDICAL EXCURSIONS FOR STUDENTS OF MEDICINE.

SOME three years ago M. Etienne Bazot organised a system of "Voyages Médicaux" which was intended to give medical men and others interested in science the opportunity of visiting French places which possessed a medical or other scientific interest, and if the "voyages" were properly appreciated of extending them to other countries. M. Bazot

was struck by the success of the visit of French medical men to our shores last year and of the return visit by British medical men to France during this year, and his organisation now proposes that a somewhat similar visit shall be paid to France by British students of medicine and "internes"—i.e., house physicians and house surgeons. The tours are not, of course, intended to be, as were the visits of the French and British medical men, purely complimentary, but have been drawn up after the manner of the well-known excursions to French watering-places conducted by Dr. Landouzy. Four tours have been arranged for, one lasting 20 days and costing 455 francs including everything, a less expensive one lasting 15 days and costing 375 francs, one lasting 12 days and costing 275 francs, and finally one lasting seven days and costing 180 francs. It is proposed that these tours should take place in August when the French students will be at liberty to receive their British *confrères* and it is hoped that next year a return visit will be paid to this country by French students. Any further information will be supplied by M. E. Bazot, Administrateur des Voyages Médicaux au Service Annexe de l'Œuvre, 1, Rue de l'Echelle, Paris. We are afraid, however, that the scheme has been laid before us too late for anything to be done this year, the medical schools having broken up for the vacation. We are all the more sorry that this should be so, for the idea seems to us to be a very good one and the programme arranged is certainly attractive. For instance, that for the 12-day tour at 275 francs includes a visit to Calais, Lille, Paris, Vichy, Royat, La Bourboule, Mont Dore, Néris-les-Bains, Boutges, and back by Paris to London. Concerts, receptions, theatres, and other entertainments have been arranged for and no one, we think, would regret going.

THE DIRTY DOOR HANDLE.

A DIRTY door handle is an obvious offence against sanitary principles. From a strictly bacteriological point of view all door handles, even those which present a clean and polished appearance, are probably dirty. Constant contact with the hand means contamination sooner or later and the kind and degree of contamination depend, of course, upon the conditions to which the hand has been exposed. It is conceivable that a dirty door handle would convey disease and there is thus ample reason why door handles should be kept as clean as possible. If this cannot be done the institution of the door handle should be abolished in favour of some method which dispenses with actual contact of the skin. There is much to be said in favour of a foot lever for opening doors, as there is in the case of a foot lever instead of taps in the lavatory, but perhaps there might be difficulties in the application of this to railway carriages. Every railway passenger has experienced to his intense annoyance the unspeakable griminess of the door handle of a carriage, say, on the Underground Railway or any other railway the track of which lies through smoky tunnels. It avails little to polish these handles occasionally for they are so soon begrimed again. At one time there was no such thing as an inner handle communicating with the outer handle and so the passenger who wanted to get out had to soil his hands unless an obl'ging porter happened to be near. But the inside handle is clearly no remedy for the passenger who wants to enter a train. The undoubted evil of dirty door handles on the railway carriage is practically abolished on corridor trains in which, as on the tube railways, the duty of opening and closing the doors devolves entirely upon the conductor. It will probably be a long time, however, before the single compartment system is done away with, and as long as it exists so also will the ever-occurring nuisance of the dirty door handle. Some attempts apparently have been made to mitigate the evil, for we know of at least one railway company which, at any rate in some of its carriages, has adopted a short handle to turn which requires only a small effort owing to the operation of a lever inside the lock. Indeed, the lock may be easily released by a slight pressure of the thumb and the forefinger and only a slight soiling of the fingers is involved. Most railway carriage door handles, however, are large and clumsy, requiring a complete grip with the whole hand before any effect upon the lock can be obtained. In such a case the fouling of the hand is complete. Surely such a disagreeable system of opening the doors of railway carriages could be replaced by some much less objectionable method. Dirt is, of course, largely inseparable from the railway train but we think that this particular and offensive evidence of it might easily be minimised. At all events, no contrivance for the purpose could be better adapted to soil the hands of the passenger than the handles in use at the present time by most of our railway companies.

THE BONE MARROW IN TYPHOID FEVER.

THE characters of the leucopenia or hypoleucocytosis of typhoid fever have been carefully studied, notably by Naegeli and Thayer. The most characteristic changes in the leucocyte count of an uncomplicated case are a decrease in the number of polymorphonuclear leucocytes and a relative increase in the number of lymphocytes, especially of the hyaline or large lymphocyte variety, while the eosinophiles are diminished or absent. This leucopenia is as a rule well marked during the second week and persists into the period of convalescence. When complications arise, especially such as are due to secondary infection, varying degrees of leucocytosis occur with an increase in the number of polymorphonuclears, though often to a less degree than would be produced by a similar infection if occurring primarily. This point has recently been emphasised by Kast and Gütig, who after a study of 40 cases of typhoid fever complicated by secondary infections found that in 80 per cent. of them the leucocyte count ranged below 7000 per cubic millimetre. This was especially so in cases of perforation of a typhoid ulcer followed by general peritonitis. It is obvious that a study of the condition of the bone marrow in cases of typhoid fever is of great interest in this connexion but few observations are recorded bearing upon this matter. Fraenkel has drawn attention to focal necrosis of the bone marrow in some cases and Mallory has described changes in the bone marrow similar to those occurring in the spleen. The subject has been investigated in a laborious and painstaking research by Dr. Warfield T. Longcope, whose conclusions are recorded in an interesting paper published in the Proceedings of the Pathological Society of Philadelphia (Vol. VIII., No. 2, p. 49, 1905), to which is appended a useful bibliography. The condition of the bone marrow was investigated in 26 cases of typhoid fever, and for purposes of comparison in 15 cases of pneumonia, two of miliary tuberculosis, one of acute cerebro-spinal meningitis, one of retroperitoneal abscess, one of puerperal septicæmia, four of chronic nephritis, one of carcinoma of the gall-bladder, and also in two normal individuals (in the leg immediately after amputation for accident). Details are given of the methods used and of the conditions observed. Dr. Longcope divides the cells of the marrow into two groups, the first being the granular cells, and comprising the neutrophilic granular myelocyte and the eosinophilic granular myelocyte together with the ordinary polymorphonuclear leucocyte and the eosinophiles. The second group, that of the non-granular cells, includes the large and small lymphocytes. The 26 cases of typhoid fever showed definite and fairly constant changes which closely resembled those found in the mesenteric lymph

glands and spleen. There were a large number of lymphoid cells, of large phagocytes, and at the same time a condition of hyperplasia of the blood-forming cells. There were also usually disseminated foci of necrosis and in patients dying from perforation peritonitis, diffuse degenerative changes, with marked congestion and œdema. Differential counts of the marrow cells in ten of the cases showed a marked relative increase in the non-granular or lymphoid variety of cell over the granular myelocytes. A different condition was found in the cases of acute pneumonia, of acute peritonitis, of cerebro-spinal meningitis, of puerperal septicæmia, and of retro-peritoneal abscess, in all of which there was a marked relative increase of the granular myelocytes over the non-granular cells. Moreover, no foci of necrosis were found and large phagocytic cells were rare or entirely absent. In the cases of chronic nephritis and of carcinoma of the gall-bladder there were no distinctive pathological changes and the conditions closely approximated to those in the two normal cases. Dr. Longcope discusses the significance of his observations and the probable manner in which the typhoid toxins produce these changes.

A CENTURY OF EMPIRE: ITS LESSONS AND RESPONSIBILITIES.

THE *Fortnightly Review* last month contained an article by Major-General Sir Thomas Fraser, K.C.B., on "A Century of Empire," to which we may call the attention of our readers because it deals in an able and a comprehensive manner with the subject treated. The author describes in a brief but realistic way the great growth of the British Empire that has taken place during the past century. He inculcates the necessity which exists for us as the leading race "to think imperially" and to realise a sense of unity or unification of purpose by being prepared to take a full personal share in the burthen of war if the scattered fragments composing that empire are to be maintained and held together in the future. Like all stories worth the telling, the moral of what General Fraser has to say lies on the surface. The principle that it is the duty of every citizen to qualify himself by an acquaintance with some form or other of army drill and military formations and with the use of the rifle in order to take his part if need be in the defence of his country seems to us to be sound and justifiable, and, what is more, we believe that if this principle were acted on it would for hygienic and disciplinary reasons lead to the physical and moral improvement of all concerned. In common with many other people it fell to our lot to study several of the numerous reports and articles which appeared during, and since the termination of, the war in South Africa and subsequently to read much in connexion with the momentous and dramatic series of events which have been taking place in the great struggle for supremacy in the Far East. The full force and effect, however, of what has been accomplished during the present war we have yet to learn. It is needless to say that these illustrations of modern warfare conducted on new principles and on a colossal scale have compelled attention to such questions as the organisation of our own forces for effectual national and imperial defence. Notwithstanding the reports and recommendations of Royal Commissions, the strenuous efforts of War Ministers, and the official and non-official suggestions of all sorts and conditions of men it cannot be said that a scheme has yet been devised which commands any general feeling of confidence and hearty assent. Such a measure must be not only so comprehensive in its nature and scope as to be capable of fulfilling the requirements of the empire but it must at the same time be of such a character also as to be suitable, practicable, and reasonably adaptable to the present time and circumstances. Is it beyond the power of our statesmen to design some rational scheme for compulsory national training in order to avoid compulsory service, which is a different thing? We cannot think so, difficult as the task is; neither do we think that our various colonies and dependencies would refuse to aid and to coöperate in giving effect to any bold and well-considered measure for imperial defence. Nor should the fact be lost sight of that the sanitary and medical requirements of armies of the present day have also to be taken into account in considering any big scheme of this kind, the settlement of which, whatever may be said or thought to the contrary, is one of the vital questions of the present time.

MYELOGENOUS LEUKÆMIA WITH MULTIPLE TUMOURS OF THE SMALL INTESTINE.

AT the meeting of the Société Médicale des Hôpitaux of Paris on June 23rd M. Maurice Letulle and M. Paul Halbron described the following remarkable case. A married woman, aged 25 years, was admitted into hospital on Jan. 25th, 1904, complaining of digestive troubles. She had a daughter, aged five years, who was in good health. The patient had not suffered from any previous illness except the ordinary maladies of childhood. She said that two months before admission she became ill with bronchitis and that digestive troubles followed. She vomited after meals and once had hæmatemesis. Then she noticed a large mass in the left flank. On admission she was pale and emaciated but not cachectic. There were strumous scars in the neck. In the left hypochondrium and left flank was a large and slightly tender tumour which descended almost as low as the pubes. It was slightly moveable and was evidently the spleen, though no notch could be felt. Examination of the blood showed that the patient was suffering from myelogenous leukæmia but she would not remain in hospital. She was readmitted in July in an extremely feeble and cachectic state. The abdomen was distended and gave the sensation of fluctuation. There was dyspnœa so great that paracentesis abdominis had to be performed immediately. About 17 pints of pale green slightly lactescent fluid were removed and the patient was greatly relieved. On the following day the fluid was again beginning to collect. The enlarged spleen could be felt and did not appear to be as big as it was in January. Thick, hard, and irregular masses were felt in the abdomen, which seemed like those due to tuberculous peritonitis. Death took place on this day. An examination of the blood made in the morning showed 2,150,400 red and 482,680 white corpuscles per cubic millimetre. A differential count of the latter gave the following percentages: polynuclear neutrophiles, 38·4; polynuclear eosinophiles, 3·6; polynuclear basophiles, 4·0; neutrophile myelocytes, 30·4; eosinophile myelocytes, 8·0; basophile myelocytes, 4·0; lymphocytes, 1·2; large mononuclears, 6·0; and transitional forms, 4·4. No nucleated red corpuscles were found. The deposit formed by centifugalisation of the ascitic fluid contained numerous polynuclears, a large number of myelocytes, mononuclears, endothelial cells, and many red corpuscles, of which a few were nucleated. At the necropsy a large quantity of hæmorrhagic fluid was found in the peritoneal cavity and the pelvis contained almost pure blood. Two kinds of lesions were observed on the coils of small intestine—(1) patches of arborescent vessels accompanied by recent false membrane; and (2) projections constituting veritable tumours of varying size. The largest were of the size of a mandarin orange. The tumours were smooth, soft, and elastic. The overlying peritoneum was normal. On the mesentery were similar masses. Tumours of a different kind were also present and the coils of intestine which bore them looked like shagreen. These tumours formed large dome-like papules. The mucous membrane of the

intestine was normal. The mesenteric glands were a little swollen. The spleen weighed 1620 grammes; it was firm, hard to the knife, and on section showed a homogeneous surface of the colour of normal muscle. The liver weighed 1675 grammes and had a normal appearance except that it looked a little pale and that in places there seemed to be small hæmorrhages. The bone marrow appeared to be normal. Microscopic examination showed that the subserous coat of the intestine was considerably hypertrophied, its thickness exceeding a centimetre. It was traversed by numerous vessels of new formation. Around these were developed connective-tissue fibres, in the meshes of which were polynuclear cells, principally neutrophiles, myelocytes, and lymphocytes. There were also giant cells which invaded the muscular coat. On the peritoneal surface were dense, non-vascular, false membranes, full of lymphocytes and polynuclear cells. The tumours were composed of the same tissue as that which produced the diffuse hypertrophy of the submucous coat. In the meshes of the connective tissue were some liquid, numerous neutro-, baso-, and acidophile myelocytes, and a large number of polynuclear cells. The spleen was much altered; the lymphatic follicles had almost completely disappeared; the fibrous trabeculæ were thickened; in the pulp were lymphocytes, mononuclear and non-granular cells, polynuclear cells, myelocytes, and a few nucleated red corpuscles. In the bone marrow were giant cells in a state of activity, various forms of myelocytes, among which were many basophiles and eosinophiles, and some nucleated red corpuscles. The mesenteric glands were almost entirely transformed into myeloid tissue. Clinically two periods can be distinguished in this case of leukæmia which proved fatal in eight months. At the beginning gastro-intestinal symptoms, severe abdominal pain, and repeated vomiting were dominant; then the general health failed and ascites developed. When after paracentesis the masses were felt in the abdomen both the history and the signs seemed to render the diagnosis of tuberculous peritonitis probable. The condition of the spleen was typical of myelogenous leukæmia but this was not the case with the intestinal lesions. The whole of the small intestine was thickened by the formation of a new coat which in places formed small bosses and in others veritable tumours (myelomata). The clinical importance of the intestinal symptoms in myelogenous leukæmia has been pointed out by Rendu and by Josuet. But no case appears to have been recorded in which abdominal masses were felt during life. M. Letulle and M. Halbron conclude that both clinically and anatomically the evidence shows that an intestinal form of myelogenous leukæmia may be distinguished.

AN ANNOTATION BY JOHN HUNTER.

MARGINALIA by famous men have always an interest for intelligent readers, even when their writers have apparently been actuated by a fit of temper or even fury. John Hunter was a good hater who often nursed a grievance and he was wont to scourge his adversaries and those who had offended him with no mean vigour when occasion offered. Thus we find him scribbling on the margin of one of the original manuscript Hunterian Museum catalogues sentences which even after the lapse of more than a century retain all their pristine acrimony. The writer of the catalogue is speaking, in a note or appendix, of the famous dispute on the absorbent nature of the lymphatics. "In the Life of Dr. Hunter," he says, "written by Dr. Simmons [John Foart Simmons] we find a desire of robbing him of the discovery of the lymphatics being absorbents, and to prove that he was not the discoverer a passage is quoted from Nogues' works." The mention of this writer provokes John Hunter to the following characteristic outburst. It was scribbled, apparently in great haste, on a stray scrap of paper and has been bound into the catalogue and piously furnished with a transcript in full by Hunter's disciple, the College Conservator, William Clift. "Nogues' work," says John Hunter, "is what they call an improvement upon Keil, but I may venture to say that those who are only able to publish the works of others are themselves not fit to publish any thing in that way; for they can never be a judge of what should be added, nor what should be taken away; for if they were perfectly master of the subject, then they certainly could make a better book themselves upon the subject. It is much easier for a man of real knowledge to make a new work than to mend an old one. It is clear that they can only in real knowledge be cobblers; and indeed there are few works that deserve a new edition, when they require additions, excepting by their original author." There is much to commend Hunter's view.

THE TRAINING OF WORKHOUSE INFIRMARY NURSES IN YORKSHIRE.

THOSE who have watched the development of the art of nursing during the last quarter of a century, and who must of necessity have been struck by the improvement that has taken place in the attainments of nurses in the various hospitals throughout the kingdom, cannot have failed also to note the desire on the part of the public to be supplied with properly trained nurses in cases of illness and the gradual improvement in the status and training of nurses in workhouses and union infirmaries. Some time ago a conference took place between certain of the unions of the West Riding of Yorkshire with the idea of arranging some scheme of training and of examination on a common basis, but no definite conclusions were arrived at. During the last ten years the guardians of the Leeds union have provided a systematic course of training for probationer nurses and the results have been eminently satisfactory. The union infirmary, which is undergoing substantial reconstruction and will be considerably enlarged, is certified at present for 650 cases, exclusive of 120 imbeciles. The number of acute cases and of surgical cases is considerable. During the year 1904 there were 2474 patients admitted. In such an institution which has as its head an experienced resident medical superintendent in the person of Dr. J. Allan, who is assisted by two juniors, the training can, as might be expected, be thorough and efficient, though even in this case it would be desirable if an arrangement could be made for the nurses, during some time of their training, to spend some months at a large general hospital to extend their surgical training. The staff consists of a matron at a salary of £100, an assistant matron, a sister whose duties are mainly in the nursing home, a night superintendent, and ward sisters at salaries of from £32 to £35, together with assistant nurses and probationers who are undergoing a course of training. These constitute in all a staff of 60, exclusive of those in charge of the imbecile department. The probationers attend on two months' trial. If found suitable physically and it is thought that they will turn out good nurses they then "sign on" for three years' training and during this time they are paid at the rates of £10, £14, and £18. They are instructed in systematic classes and tutorial classes first by the matron and then by the resident medical superintendent. At the end of their three years' training they are examined by an independent external examiner by means of a written examination and by a thorough *viva voce* examination, and on his report, coupled with that of the resident medical superintendent and the matron, the certificate of efficiency is given or withheld. Since 1895 about 100 nurses have obtained certificates and the examiner has had no difficulty in the maintenance of a satisfactory standard. During the last few years the guardians of the Hunslet union have instituted a course of training on much the same lines as

those above noted. Mr. J. Buck, the visiting medical officer, worked for some years under Dr. Allan and has taken up the work of lecturing to the nurses and instructing them in tutorial classes. The handsome and beautifully equipped workhouse and infirmary of the various parishes within this union, which represent a population of about 83,000, were opened some 18 months ago. The present accommodation is for 450 but the administrative block is adapted for double that number and the site covers an area of 18½ acres. The infirmary is a separate building, connected with the main building by a covered corridor, and consists of a central block which includes the nurses' quarters and of pavilions for males and females, which together give accommodation for 146 patients. There are also a small maternity block for five cases and a separate block for imbeciles with accommodation for 36. The staff consists of a matron at a salary of £45, three charge nurses, and at present eight probationers. The charge nurses are paid £30 and the probationers at the rates of £12, £16, and £20 for their three years of training. At both institutions the accommodation for the nurses is excellent; good bedrooms, sitting rooms, and recreation rooms are provided, and the guardians have shown themselves willing to fall in with any suggestions from the medical officers and from the external examiner who is the same for each union.

SLEEP IN CASES OF CEREBRAL TUMOUR.

THE symptom of sleep in cerebral tumours has not received much attention. One reason is that it has not been carefully distinguished from allied states, such as coma and torpor. In the *Archives Générales de Médecine* of June 20th Professor Raymond has published a valuable lecture on the subject. As points of distinction between sleep and coma he mentions that in the latter the pulse is large and strong and has the characters of the cerebral pulse, that the respiration is deep and often stertorous, and, the most important distinction, that the most powerful stimulation does not awaken the patient. But these differences are diminished when the coma is only slight—when there is a state of obnubilation or somnolence of greater or less intensity. Incomplete coma, like sleep, may last only a few hours and strong stimulation may awaken the patient, but there is not a true awakening as in the case of sleep, the patient comes out of the state of torpor only for an instant and does not quickly regain all his faculties. Professor Raymond relates the two following cases of cerebral tumour in which sleep was a prominent symptom. A domestic servant, aged 22 years, was admitted into the Salpêtrière Hospital at the beginning of January, 1905. In July, 1904, she was attacked with irresistible sleep and was taken to the Hôtel Dieu where "hysterical sleep" was diagnosed. She slept for three whole days and then awoke spontaneously. The limbs were stiff, there were frequent attacks of vertigo, and she continually staggered. In August there was slight improvement but in September the staggering increased, she complained of dizziness, and talked in her sleep. In October she improved again and in November she attempted to return to work but felt giddy and somnolent all day. There was at times incontinence of urine and fæces. In December she suddenly passed into a sleepy condition which lasted 24 hours. On awaking she was prostrated, suffered from headache, and answered questions with difficulty. This condition persisted at the time of admission to the Salpêtrière Hospital. On the following days she was in a state of hebetude. She took her food and slept well and seemed to understand partly what was said to her. At times urine and fæces were passed. The head was thrown back, the face was grimacing, the expression was stupid, and articulation was so defective that she could scarcely be understood. She complained of constant occipital pain, which was increased when the head was bowed. The gait was hesitating but not definitely ataxic or cerebellar. There were slight rigidity of the limbs, which was greater in the lower ones, and increased tendon reflexes. There were no stigmata of hysteria. Her mental condition was torpid and she acted like an automaton. On shaking her energetically she was aroused for a few moments and answered questions better and with improved articulation but in a few minutes she relapsed into her habitual somnolent state. On Jan. 26th she became comatose and the temperature rose to 105·8° F. She died on the following morning. The necropsy showed a sarcoma growing from the left side of the pons and two secondary nodules in the left subthalamic region. Professor Raymond points out that though the diagnosis of hysteria made before the patient was admitted into the Salpêtrière Hospital was natural he found no stigmata of hysteria. The sleep resembled neither coma nor narcolepsy. For, on the one hand, the patient could be aroused, and, on the other, the sleep was not profound but a condition of somnolence or continuous prostration. In the absence of any intoxication he was led to suspect cerebral tumour. In the second case a woman, aged 42 years, was admitted into hospital. She enjoyed good health until a fortnight previously, when she passed into a state of continuous and progressive somnolence. She was in a condition bordering on coma, soon became completely comatose, and died on the following day before a thorough examination could be made. The necropsy showed two sarcomatous tumours in the right cerebral hemisphere—the larger in the posterior part of the lateral ventricle and the smaller, which was apparently secondary, in the occipital lobe. Only a few cases in which sleep, as distinguished from the allied states of coma, somnolence, or torpor, has been observed as a symptom of cerebral tumour have been previously recorded. Janet has described the case of a French girl, aged 14 years, of a very neurotic family who went to America.[1] In June, 1891, she complained of fatigue and torpor. After 48 hours she became delirious and then fell into a profound sleep which lasted for a fortnight without interruption. No reply to questions could be obtained from her but from time to time she swallowed a little milk. She improved and was sent back to France. But two days after her arrival she again passed into a condition of sleep though less profound than before. When spoken to she answered and complained of headache and begged not to be disturbed. She vomited several times. She could walk but knocked against objects. There were right hemiparesis and hypo-æsthesia with intention tremor of the arm and leg and left facial spasm. Intelligence was retained but memory for recent events was lost. When left alone she relapsed into sleep, from which she could be awakened by shaking. She died on August 29th. The necropsy showed a "parasitic cyst" three centimetres in diameter at the apex of the sphenoid lobe. Soca has recorded a case of sarcoma of the pituitary body in a girl, aged 18 years, who slept for seven months.[2] The sleep was apparently natural and she sometimes awoke spontaneously. Every day she was awakened to take food. Professor Raymond points out that sleep is usually an early symptom, or the first symptom, in those cases of cerebral tumour in which it occurs and that often other symptoms are so vague as to render the diagnosis difficult. Sometimes periods of sleep are separated by longer or shorter intervals and later the sleep becomes continuous. In other cases sleep is continuous from the beginning to the end. The nature of the sleep varies: sometimes it resembles natural sleep and the patients readily awake and entirely recover consciousness; others are in a state of torpor from which they can be roused only for an instant by energetic shaking and even then there is intellectual obnubilation. Still other

[1] Archives Générales de Médecine, October, 1891.
[2] Nouvelle Iconographie de la Salpêtrière, 1900, p. 101.

patients cannot be awakened even for an instant and their state borders on true coma. Further, the patient may pass through all these conditions.

VACATION COURSES IN BACTERIOLOGY AND PATHOLOGY AT KING'S COLLEGE, LONDON.

A COURSE in clinical and practical bacteriology, suited to the requirements of medical practitioners and senior students—e.g., for the M.B. examination—will be held daily at King's College, London, from 10.30 A.M. to 1 P.M., commencing on Wednesday, July 26th, and ending on Saturday, August 5th. The course will consist of lectures, demonstrations and practical work; in the last-named the members of the class will make for themselves permanent preparations of the chief pathogenic micro-organisms and will carry out the principal manipulations employed in bacteriological investigations. The fee will be £3 3s. inclusive of materials and the like. Names should be sent as soon as possible to the Secretary or to Professor R. T. Hewlett. A course in clinical pathology will also be held on six afternoons from July 27th to August 4th, from 2 to 4.30 P.M. The course will consist of demonstrations and of practical work. The inclusive fee is £2 2s. If both courses are taken the inclusive fee will be £4 4s.

FATAL POISONING WITH SODIUM CHLORIDE.

IN *American Medicine* of April 22nd Dr. C. M. Combs has reported an unfortunate accident which resulted in fatal poisoning by sodium chloride, a substance usually considered non-poisonous. No similar case appears to have been recorded previously. Vaginal oöphorectomy was performed on a woman, aged 35 years. Her general condition was good, the operation was short and simple, and no apprehension was felt as to her recovery. To prevent thirst and renal congestion 500 cubic centimetres of normal saline solution were ordered to be injected under each breast. By mistake a stock bottle containing an almost saturated solution of sodium chloride was used instead of the diluted 0·9 per cent. solution. The injection was given while the operator was making the final toilet of the peritoneum. Four hours later, when the patient was seen, she was unconscious. The mistake was ascertained when the stock bottle was found empty. The woman had received 1920 grains of sodium chloride. She remained comatose for six hours. Then she was maniacal and talked until death which took place 24 hours after the operation. At first the pulse was 190 and bounding; later it was too rapid to be distinguishable, and the respirations rose to 70. There were insatiable thirst, a slowly ascending temperature attaining a maximum of 104° F., and constant nausea. The vomit contained five grains of sodium chloride to the drachm. During the 24 hours 300 cubic centimetres of urine were excreted which contained 11 grammes of sodium chloride—a normal amount considered absolutely but large relatively to the quantity of urine. There was neither albumin nor sugar. The red blood corpuscles were shrivelled and crenated from exosmosis. Dr. Combs thinks that the rapidity of the pulse and respiration was due to an effort of nature to compensate for the diminished oxygeniferous powers of the corpuscles. The treatment consisted in keeping the patient in a continuous hot pack and allowing and even urging her to drink large quantities of water. The combined excretions (urine, sweat, fæces, vomit, and tears) appeared to remove nearly half of the salt.

THE commissioner of public health for Brisbane reports that for the week ending June 3rd 1 case of plague occurred in Brisbane and 1 death from plague at Ipswich, near Brisbane, on May 31st. During the previous week ending May 27th no case of plague occurred in the district. As regards the Mauritius, a telegram from the Governor received at the Colonial Office on July 7th states that for the week ending July 6th there was 1 case of plague and 1 death from the disease. As regards the Cape Colony, the medical officer of health of the colony reports that for the week ending June 17th 1 case of plague was discovered, being that of a native male found dead at East London on June 15th. Plague-infected rodents were found at Port Elizabeth, East London, and King William's Town. At Hong-Kong, a telegram from the Governor received at the Colonial Office on July 10th states that for the week ending July 8th there were 21 cases of plague and 21 deaths from the disease.

His Royal Highness the Duke of Connaught, president of the hospital, who will probably be accompanied by the Duchess of Connaught and Princess Patricia, will perform the ceremony of opening the nurses' home at the City of London Hospital for Diseases of the Chest, Victoria Park, E., on Wednesday, July 26th, at 4 P.M.

THE residue of the estate of the late Mrs. Hames, wife of Mr. G. H. Hames, F.R.C.S., of 113, Sloane-street, London, has been bequeathed to King Edward's Hospital Fund for London, subject to her husband's life interest. The residue will probably exceed £50,000.

THE Archbishop of Westminster will deliver a sermon before the Royal Institute of Public Health on Sunday, July 23rd, at the new Westminster Cathedral. Medical practitioners are invited to be present in academic costume.

General Laurie's Bill to amend the Medical Act of 1886 in such a way as to admit of a more complete reciprocity between Canada and the mother country has passed the second reading without comments.

A SHORT vacation course of 22 lectures and demonstrations will begin at the Post-Graduate College, West London Hospital, on August 10th, information concerning which can be obtained from the dean.

THE total amount received at the Mansion House for the Metropolitan Hospital Sunday Fund up to Wednesday evening exceeded £50,000.

Looking Back.

FROM

THE LANCET, *SATURDAY*, July 14, 1827.

We have not deemed it a duty to bring the professional conduct of private practitioners before the public eye, unless there have been connected with it circumstances of peculiar atrocity, calculated either to scandalise the profession, or prove detrimental to the public welfare; and even in such cases we have hitherto refrained from publishing the names of the parties, unless they have appeared to answer for their misdeeds in some of our courts of law, or public offices of police. But we are not quite sure, that we are acting with equal propriety in exercising a similar delicacy on the present occasion, because the circumstance to which we have to call the attention of the profession, is one so truly disgraceful, so characterised by a base and cold-blooded disregard of human life and human happiness, for the sake of contemptible and paltry lucre, that any lenity displayed in exposing it, almost amounts to a participation of the crime. A correspondent, on whose veracity the most perfect reliance may be placed, informs us, that in one of the western counties, a person calling himself a *surgeon*, has recently *inoculated* with the *virus of small pox some*

hundreds of persons at five shillings a head, thus attempting to perpetuate one of the most blind and besotted of prejudices against the immortal labours of JENNER, and to keep alive and extend the ravages of one of the most horrible diseases that ever afflicted the human race. To the individual in question we do not address one word, as he must be devoid of sense, as well as of feeling; but surely prudence demands that the public should be protected against the remorseless proceedings of such a relentless monster; and, in the absence of an EFFICIENT College of Surgeons, we are not aware that any measure other than an Act of Parliament, rendering inoculation for the small pox, without previous vaccination, punishable by fine and imprisonment, can prove an effectual safeguard.

This subject demands the earliest attention of Parliament.[1]

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE FELLOWS' DINNER.

THE second annual Fellows' dinner was held at the College in Lincoln's Inn-fields on July 6th, after the meeting of Fellows for the election of members of Council. Nearly 100 Fellows were present, Mr. JOHN TWEEDY, the President, being in the chair. Many present and past members of the Council were present, among the senior Fellows being Mr. Thomas Bryant, Sir Thomas Smith, Colonel J. G. Pilcher, I.M.S., and Mr. T. W. Nunn.

The PRESIDENT proposed the toast of "The King" and after this had been duly honoured it was followed by the toast of "The Queen, the Prince and Princess of Wales, and the other members of the Royal Family." In proposing this toast the President mentioned that the Queen had paid a private visit to the museum in February last and that she had inspected all the museum and had expressed herself as very pleased with all she had seen and said that she hoped to revisit it on some future occasion.

The PRESIDENT then asked them to drink to "The Fellowship of the Royal College of Surgeons of England." He said that the toast list was purposely short, as it was wished to make the gathering somewhat of the nature of a conversazione and it was hoped that at the close of the dinner the Fellows would adjourn to the next room and spend their time in conversing with one another. At the Fellows' dinner last year he had mentioned that two of the original Fellows were still surviving, but even while he was yet speaking the spirit of John Birkett was passing to its rest and only a fortnight later died the other, Sir John Simon. Then Luther Holden became the senior Fellow and he died a few months later. Each of these Fellows in turn was the senior Fellow and each represented one of the three great branches of science with which the College is connected. Holden represented anatomy, especially in its relation to surgery; Birkett represented surgery; and Simon represented the science of hygiene. Throughout the world the Fellowship of the College was acknowledged to be the highest test of surgical knowledge. At present the Fellows were increasing in numbers by some 50 a year, but he thought that in the future the number of Fellows would become much greater. In conclusion, the President called upon those present to drink to the Fellowship of the Royal College of Surgeons of England and he asked Mr. Bryant and Colonel Pilcher to reply.

Mr. BRYANT said that he was glad to have the opportunity of replying to the toast, as he wished to present to the College a loving cup. For some years there had been held dinners of the Fellows but those dinners had not been held in the College. When the Council had decided to have an annual Fellows' dinner in the College buildings it was thought desirable to discontinue the other dinners. There was, however, in the hands of the secretaries a sum of some £80 and at first there had been some difficulty in deciding what to do with it. The permanent committee, which consisted of Mr. F. W. Braine, Mr. C. C. Braine, Mr. Lowndes, and himself, had at length decided to purchase a loving cup and to present it to the College. He had, therefore, the great pleasure of presenting the cup to the President on behalf of the College.

The PRESIDENT accepted the gift in the name of the College and the cup having been filled with wine was sent round, the President handing it first to Mr. Bryant, with the following words: "This cup contains a wine of France with whose great school of surgery we are linked by centuries of historical association and by considerations of mutual obligation and respect. The wine is fortified with a spirit, the spirit of good fellowship, and it is sweetened with pleasant memories. I will now add the cordial—a hearty welcome and good wishes to you and everyone here present."

Colonel PILCHER also responded to the toast of "The Fellowship." He mentioned how high a position was held by the Fellowship of the College throughout India and the colonies, as well as in the British Isles.

Sir THOMAS SMITH proposed "The Health of the President," who was, he said, the cause of the institution of these dinners and no worthier representative of the College had ever filled the presidential chair.

The PRESIDENT, in acknowledging the toast, insisted that the greater part of the work had fallen on the shoulders of the honorary secretaries, Mr. C. T. Dent and Mr. G. H. Makins. He hoped that the Fellows would move into the adjoining room and view the specimens which had been added to the museum of the College during the preceding 12 months. This was done and for an hour an informal conversazione was held.

MEDICINE, ITS PRACTICE AND ITS PUBLIC RELATIONS.

CHAPTER XX.[1]

SOME CONCLUDING SPECULATIONS.

The Sequel to the One-portal System.—The Corporations as the Examining Authority.—A British Academy of Medicine.—An Imperial Naval, Military, and Colonial Service.—A Ministry of Public Health.—The late Lord Salisbury on Moderation.

I MAY repeat in this last chapter what has been said already concerning the purpose of these articles. The desire has been rather to describe the existing condition of the medical profession than to suggest remedies for anything wanting in that condition. A vagueness of project in medical reformers has in the past much retarded such efforts as have been made to place the profession of medicine upon a better footing; and this has been brought about by disagreement as to what the actual evils are and what their actual dimensions, rather than by hesitation as to the necessary remedies. It is not to be wondered at when medical men have been themselves, as a body, so doubtful of their aims that the public have been equally so; but the want of sympathy manifested by the public has prevented fair play being given to schemes for the improvement of the status of the medical profession under which the public would have been the chief beneficiaries.

The various defects in the professional life of a medical man, especially in the public relations of that life, have been detailed at some length, in the course of which remedies have frequently become apparent, but no systematic scheme of reform has been advocated because, on good grounds or not, I am inclined to regard such schemes as visionary. The education of the medical student may become a definite and symmetrical thing, the quack may have his soaring wings clipped, the State may find a way to provide both medical assistance for the poor and

[1] Excerpt from a leading article.

NOTE.—In a letter published in THE LANCET of August 4th, 1827, "Veritas" states: "I regret to say there are some practitioners in the environs of this great metropolis, who are doing daily, *under coverture*, what this person has the greater manliness and honesty to do *openly*, and probably under the persuasion that he is acting right."

[1] Chapters I., II., III., IV., V., VI., VII., VIII., IX., X., XI., XII., XIII., XIV., XV., XVI. XVII., XVIII., and XIX. were published in THE LANCET of Feb. 18th (p. 447) and 25th (p. 517), March 4th (p. 593), 18th (p. 736), and 25th (p. 817), April 1st (p. 877), 15th (p. 1017), 22nd (p. 1089), and 29th (p. 1151), May 6th (p. 1218), 13th (p. 1287), 20th (p. 1375), and 27th (p. 1449), and June 3rd (p. 1533), 10th (p. 1584), 17th (p. 1657), and 24th (p. 1741), and July 1st (p. 43) and 8th (p. 87), 1905, respectively.

sanitary supervision of rural neighbourhoods without relying largely on unpaid work—these things, not only may, but will, happen in course of time. But I cannot conceive that any Bill proposing to amend the Medical Acts at one swoop in a wholesale manner will receive serious discussion in the House of Commons. Medical reform will arrive piece-meal and the career of the medical man will be made smooth much in the way that an old city street is reconstructed to meet modern demands. There are here no wholesale demolition and no elaborate scheme of rebuilding. Some structures, which have become useless, are replaced by other structures better fitted for modern functions; a private house becomes a shop; a warehouse becomes a railway station; a narrow gut by the gradual placing back of one or other side of the street is transformed into a channel of symmetrical width with the rest of the thoroughfare; a few new public buildings make their appearance; and so on—what can be used remains in use, obsolete buildings which can be satisfactorily converted to other purposes are so converted, and what is of no good perishes; but all the old associations are not violently destroyed by the crowbar and pickaxe. Similarly the medical profession, in its domestic as well as in its public relations, can be adequately reformed by the gradual removal of abuses, by the introduction of improvements that are sorely wanted, and by alteration of the functions of institutions whose efforts no longer meet the demands made upon them. There is no need for violent and wholesale reorganisation of everything, but there is every need for a common understanding among medical men as to what are the things that in the public interest most call for reform, for common endeavour to get such reform carried out, and for the enlightened sympathy of the public in the work.

It is also necessary for practical reasons that the medical profession should formulate all demands for the betterment of existing circumstances with moderation and should recognise freely such improvements as have taken place. To do otherwise induces inactivity in those of the medical profession who would work for the betterment of their order, while influential people outside the medical profession take leave to regard medical men as unjust grumblers, for whom it is no good to try to do more as it is not allowed that anything has been done at all. I feel that anyone who has read these chapters in THE LANCET might be inclined to sum them up roughly as a mass of grumbles—grumbles about money, grumbles about status, grumbles about education, and so on—but the scantiness of the suggestions that have been ventured for the alteration of the circumstances complained of should show that I have not endorsed the view that the medical profession is in a very unfortunate plight. The medical profession has steadily progressed in learning during the past 50 years—this cannot be gainsaid—while as a whole the progress has been no less marked in moral and social standing. The princes of medicine have enjoyed always the esteem and consideration of the public, but this has not necessarily been the case with the medical profession as a whole. But there are more medical men to-day who are thoroughly well-educated cultured gentlemen than there were ten years ago, and every decade for the last half a century has witnessed a steady levelling up commensurate with the rise in the knowledge and culture of the public. The Latinity upon which the Fellows of the Royal College of Physicians of London were wont to pride themselves may have lost some of its finish, but this fact is surely counterbalanced by the disappearance of the apothecary vendor of tooth brushes and perfumery. What if other professions have arisen whose followers are also men of education and scientific learning? Nothing can force into the background the position enjoyed by the really well-equipped medical man, and too much importance must not be attached to the fact that the public appears generally ready to underpay the medical man. The misapprehension of professional aims under which this occurs will disappear and a steady effort should be made to bring this about as soon as possible.

Leaders have been lacking to the cause of medical reform who were ready with practical measures to meet existing conditions. There have always seemed to be two classes within the profession, a class who, through apathy or selfishness, "care for none of these things" and a class who are so acutely alive to certain of the grievances under which the medical profession lies as to be unable to see any compensating advantages or to hope for any amelioration of their plight. Such division of aims and interests has been particularly harmful in the past but recently there have been many signs that a better state of things is approaching, for I disregard those who affect to see in all hospital staffs and public vaccinators the deliberate enemies of the general practitioner. At the same time the absolute necessity that medical men should themselves agree upon what is wanted before raising their voices in any demand is becoming recognised, and as much may be said for the advisability that only such measures of reform should be demanded as are demonstrably for the public good. Moderation in what is sought under the name of medical reform does not imply any half-heartedness in the belief that such reform is required or any abstention from further demands in the future. Certainly, let us look forward to the time when all grievances whatsoever will be removed and all hindrances to a perfect understanding between the public and the medical profession will be swept away. This time will be a time when other professions besides the profession of medicine will be carried on upon ideal terms; when some such perfect unanimity between classes prevails as is usually depicted in the literature of the Utopias. Between this ideal future epoch (when, by the way, the public will need of medical men rather their advice as to prevention than as to cure) and the present day there is room for the free play of evolution, and because for the moment little is asked for it does not follow that there is but little that calls for accomplishment.

Take the one-portal system for example, the arguments for and against which were weighed in the preceding chapter. It has been over and over again insisted that the institution of a one-and-only entrance into the medical profession would be a valuable reform. But at the present moment any movement towards such a reform would be resisted in all probability by the medical corporations, certain of whose functions would thus be superseded. The time will come when the corporations will be recognised by everybody to have finished their work as educational bodies. Already the competition of the provincial universities is pressing them hardly, and whereas the universities are young and will grow in strength and multiply in number there seems no particular motive force upon which the corporations can rely to strengthen their position. As Professor Churton Collins has recently pointed out, a revolution, the nature and extent of which have been very imperfectly apprehended,[1] has during the last 15 or 20 years been profoundly affecting society in this country, especially in that stratum from which medical students are chiefly drawn—the middle or lower middle class. The tastes, the studies, and the aspirations which but a few years ago were peculiar to a small minority are now shared by the multitude. To go back a little further, 50 years ago there were in England and Wales only two Universities discharging the real functions of a university—the two mediæval foundations of Oxford and Cambridge. These two Universities then received annually about 2000 undergraduates. To this total a handful of students at Durham must be added, the foundation of the University of London not being taken into account, for an examining board, however high its standards and however extensive its imperial aspirations, cannot ever be a university. Mark the difference to-day. Each of the thirteenth century Universities welcomes 3000 students as undergraduates—Oxford had 3538 in 1904; the Victoria University has been divided so that Manchester, Liverpool, and Leeds now contain universities of their own; Sheffield will soon be joined to this list; there is a University of Birmingham and one of Wales with three constituent colleges at Aberystwyth, Bangor, and Cardiff; while the University of London has become a genuine university with teaching functions. Scotland, which has always been the quickest of the three divisions of the United Kingdom to see the great value of popular university education, will be forced by competition to do even better than its own good deeds; Ireland presents a problem to those interested in higher education which cannot wait much longer for its solution. At a rough estimate it is probable that where 50 years ago there were 2000 university students working upon the narrowly specialised lines laid down by tradition, there are now some 20,000 students whose education is conducted towards perfecting them for the various higher walks of life.

The significance of all this cannot escape the many learned

[1] The University Review, May, 1905, "The Education of the Citizen."

and able men who are in authority over the medical corporations. They must see that among the most important faculties in the new universities are the faculties of natural science and medicine, and they must be aware that as time goes on, and as a university education comes to form part of the national life of the class whence medical students are drawn, every medical student will go to a university as naturally as he goes to his bath, he will proceed to take a medical degree as inevitably as he has his hair cut, and he will be in no more need of a qualification from a medical corporation than of an Indulgence from a Pope. The corporations will then be seen to have discharged their educational functions, but it is, to say the least, doubtful if that day has yet arrived, while it is pretty certain that the heads of the corporations are not likely to respond cheerfully to an invitation to commit suicide. The one-portal system will have its chance of securing Parliamentary support when its introduction will not damage existing institutions and when those institutions have found under altered conditions an altered scope for their activities. For the corporations will have their functions, even though the unanimous resort of all young men *in statu pupillari* to a university may make the possession of the hall-mark of a corporation unnecessary. There is the great examining function. We have seen how important the careful examining of medical students is, and the disastrous part that is played by the element of chance in the results can only be minimised by the selection of good and competent examiners. The corporations might well provide under a one-portal system all the examiners in medicine, surgery, and obstetrics who would be required by the General Medical Council or the Privy Council. The present position of the Royal College of Surgeons of England and the Royal College of Physicians of London is mainly that of an examining body—I take these Colleges as examples because the holders of the diplomas of their Conjoint Board are so numerous and because the examinations of that Board are so admirably devised and conducted. The Colleges receive a great deal of money from students and spend a great deal of money in examining students. Beyond the joint support of a laboratory, where the excellent work of the Cancer Research Fund is being carried out, and the maintenance and preservation of the Hunterian Museum by the Royal College of Surgeons of England they do not really do much more work that is of living importance and this work could be done if their diploma-granting function ceased. A Member of the Royal College of Surgeons of England is as likely as anyone else on the Medical Register to be sweated by a medical aid association, to be blackmailed by a hysterical patient, or to be browbeaten by a coroner. His corporation does not attempt to take his part in any such professional troubles, but contents itself with accepting his fees and in return examining him and giving him an assay mark. If the corporations became the examining machinery for all medical students under a one-portal system it seems to me they would be doing the same kind of practical work that they are doing now, only in still more important circumstances. In such a scheme the universities would provide the students, and the General Medical Council or the Privy Council, in looking for independent examiners, would naturally turn to the corporations. The examiners would be university graduates belonging, as the examiners now do, to the class that has aspired from the beginning to leadership in the profession. They would be the teachers in the big schools and the honorary staffs of the big hospitals, and they would qualify as examiners by taking the high honour diploma of one of the Colleges. The Royal Colleges would come to consist of the Fellows carrying on the examination work of the country and of those graduates of universities who, intending to belong to the front rank of their science, have qualified themselves to accept examinerships. The income of the Colleges would be less but so would their expenses, and, in my view, their position would be in no way lowered from that which at present they enjoy. They would represent the fine flower of the medical profession—all that is best, most ambitious, and most learned of that profession—and they would be at once recognised as the centres of medical thought. It would be an honour to belong to them.

I do not want to be understood as prophesying exactly what will happen—no claim to such perspicuity is made—nor do I suggest that any great changes will come about immediately. My guesses at the future are so far rough that they concern principally the English Colleges. I am only attempting to show that, although at the present time the Royal Colleges are almost certain to object to any one-portal system as taking away from them their most valuable privilege (the President of the Royal College of Surgeons in Ireland has just taken exactly this line), there is no reason why, as time goes on, and particularly as the numbers of their pass-men drop off, they should not come to regard the one-portal system as actually constituting their safety. There can be no doubt that the competition for the diplomas of the Royal Colleges, especially in England, has already abated, and this shrinkage cannot go on without being felt. A return of the medical students to London in great numbers will make no difference, for it will only be brought about by an arrangement of the curriculum that will offer the London student a fair chance of obtaining a doctorate: an accession of medical students to London will not increase the demand for the diplomas of the Conjoint Board. All the Colleges have past histories of which they may be proud. They have done, and are doing, good work—everyone allows this who knows anything about them, and the line of general abuse that is followed by some ardent reformers will never be followed by the well informed. If their numbers go down—and some believe that the competition of the provincial universities may bring down their numbers very quickly indeed—they may be depended upon not to let themselves die without an effort. If their rank and file drop away they must increase the power and numbers of their honour-men and take any opportunity that offers itself for their important employment. The Fellows of the Royal College of Surgeons of England are just now largely increasing in numbers and with improved medical education this increase may continue, but it may not. At the present moment a man who aspires to a surgical post in many of the more important hospitals in England must possess the Fellowship of the Royal College of Surgeons of England. There are many more large hospitals in England than in Ireland and Scotland put together, and all the young men who hope for the principal surgical appointments must be able to style themselves F.R.C.S. Eng., Scottish and Irish candidates for these posts in England being very generally required to obtain the English Fellowship. The number of ambitious young men has much increased of late, and consequently the number of men who acquire the English Fellowship has increased, but it is not in the least certain that this increase can be counted on for much longer. The moment that the M.Ch. of the universities is recognised, as it is perfectly sure to be, as an honour degree, the hospitals will begin saying in their advertisements that "candidates for the honorary staffs must be Fellows of the Royal College of Surgeons of England *or* Masters in Surgery at one of the recognised universities," when the main *raison d'être* of the Fellowship, under existing conditions, will at once disappear. Confronted with these facts the corporations in all three divisions of the United Kingdom will, I think, be perfectly willing to help on a scheme for the institution of a one-portal system; their desire will be to find a way by which their position would be confirmed as a great and important one under the new *régime*. I believe that if the examining function were given to them everyone would be pleased in time. The function would not be taken away from the universities, for all the examiners would be graduates of universities, M.D.'s as well as F.R.C.P.'s, M.Ch.'s as well as F.R.C.S.'s. The corporations would thus come to consist of the most learned and representative men—young and old—in the medical profession, and, indeed, in an automatic way, would become a sort of Academy of Medicine. Why should they not? Why should not the Royal Colleges in each dominion of the kingdom be the Academy of Medicine for the country?

Now we are in the realms of imagination, doubtless, and yet this piece of evolution seems to me to follow logically and easily upon the delegation to the corporations of the examining function, while it responds undoubtedly to an admitted want. The waste of time, money, and endeavour that is implied in the multiplication of medical societies in London alone is enormous, and this fact is now being recognised by a strong movement towards amalgamation. The scheme that is under the consideration of the Royal Medical and Chirurgical Society, the Medical Society of London, and other associations is certainly a good one. It may be planned to serve the needs of the scientific world for many years to come,

but we can none the less conceive it as only preparatory to the formation of a real British Academy of Medicine rising under the joint endeavour of the Royal Colleges and corporations. The Colleges would be the most natural centres in which a learned body—or groups of learned bodies—could hold meetings; nowhere better or more aptly could libraries and museums be housed, and the walls of the Colleges would form the natural background for the portraits of eminent members of the British Academy of Medicine. This would be particularly the case when the examining functions of the Colleges had made the honour diplomas of the Colleges a necessity for all those members of the medical profession who take an academic view of their professional life. This is frankly an anticipation of the future, an attempt to guess to what use, when the street is remodelled, certain splendid old structures might be put so that full value could be given to their dignified past and full use could be got out of them for a utilitarian—and equally dignified—future. A guess it is certainly, but not a wild guess if the propositions are allowed:—(1) that education at a university will soon become the invariable procedure of a medical student; (2) that consequently the corporations will lose their diploma-giving privileges; and (3) that they will be found to possess sufficient vitality to live under the altered conditions.

Imagination may be allowed to range for a moment over the developments that will take place in other divisions of medical practice. Surely sooner or later there will be no need to compare the merits of the Army Medical Service, the Indian Medical Service, and the Naval Medical Service to the detriment of one or the other, but each will form a branch of an Imperial Sanitary Service the functions of which in time of peace will be mainly preventive and the efforts of which in time of war or epidemic will be supplemented by its civilian *confrères*. Of such an Imperial Service a properly organised Colonial Medical Service would form an integral part and every quarter of the world would show a station in which the principles of sanitary science were strictly observed and from which in time of need expert assistance could be received by the community.

Similarly, there will surely be no need in a few years' time to compare the Poor-law service of England with that of Ireland, or the sanitary service of Scotland with that of England. As the public becomes better educated, as it recognises how much depends upon the observance of the laws of public health, we may expect a general consensus of opinion as to the advisability of a Ministry of Public Health the officers of which properly selected for special knowledge in preventive medicine, properly paid, and free from any hampering conditions, may safeguard the health of the country and watch over the interests of the sick poor. The sanitary service of the country ought not to be separated from the Poor-law service. They are one and the same thing, the care of the health of the sick poor implies the supervision of their sanitary environment. And the two services combined into one should be under a Ministry of Public Health, which would also relieve the Local Government Board of its responsibilities in respect of the introduction of disease from abroad and, indeed, all relations with foreign powers as to public health.

As a conclusion of this series of chapters in which an attempt has been made to give a synoptical view of the sociology of medicine, I should like to quote a few lines from one of the late Lord Salisbury's essays, in which he describes the position of the holder of moderate views. He says in an essay on the position of Poland:—

> There are few positions more embarrassing than that of men who hold moderate opinions in regard to questions upon which excitement is running high. They are obnoxious to the partisans whom they have left behind, and to the partisans of whose extravagance they fall short, and are regarded by each side as combining the demerits of an antagonist and a deserter. Each party equally despises the luke-warm zeal and time-serving temper which can only take up half a cause. The pursuer of the golden mean must be content with the intrinsic value of his immediate course, he will win no sympathy and must submit to be cast out as crotchety by every enthusiastic mind.

I feel that many who have the cause of the medical profession at heart will consider my conclusions in respect of reform to be inadequate. I shall be only too glad to learn that any more drastic measures are practicable; my moderation has not come from half-heartedness, but from a belief that the cause of reform is badly served by a perpetual bellowing for what never will be obtained. I have tried to urge the doing only of what can be readily done. But though I have been thus limited in what I have suggested as being immediately necessary for the removal of many of the disabilities of the medical profession, so as to make that profession more valuable to the public, I see no bounds to the possibilities of medicine as a profession in the future. The fact that after much complaining, after the recapitulation of a series of abuses, only a few suggestions for reform follow must not be taken to mean that a perfect condition of things will so be reached. On the contrary, I would have it understood—for I believe it—that the future which medicine has before it is an infinitely great one. The present disorderly state of the profession in the United Kingdom can be set aright in many particulars without any great difficulty; the men who practise under the improved conditions will be able to show a public, growing daily better and better instructed, how valuable to the community properly ordered and properly appreciated medical service may be. From this point advance should be by geometrical progression.

THE END.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 9005 births and 3484 deaths were registered during the week ending July 8th. The annual rate of mortality in these towns, which had been 13·4, 12·9, and 12·7 per 1000 in the three preceding weeks, further declined to 11·6 per 1000 last week. In London the death-rate was 11·2 per 1000, while it averaged 11·8 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 3·9 in Bournemouth, 4·5 in Northampton, 5·0 in Wallasey, 5·8 in Tottenham, 5·9 in East Ham, 6·7 in Cardiff, and 6·8 in Hornsey; the highest rates were 16·0 in Newcastle-on-Tyne, 16·4 in Sunderland, 17·4 in Liverpool and in Bootle, 17·7 in Merthyr Tydfil, 18·3 in Warrington, and 18·5 in Tynemouth. The 3484 deaths in these towns last week included 388 which were referred to the principal infectious diseases, against 355, 348, and 371 in the three preceding weeks; of these 388 deaths, 133 resulted from diarrhœa, 122 from measles, 71 from whooping-cough, 27 from scarlet fever, 23 from diphtheria, and 12 from "fever" (principally enteric), but not any from small-pox. In Hornsey, Brighton, Southampton, Huddersfield, York, Swansea, and 11 other smaller towns no death from any of the principal infectious diseases was registered, while they caused the highest death-rates in Wolverhampton, West Bromwich, St. Helens, Warrington, Salford, Barrow-in-Furness, Sunderland, and Rhondda. The greatest proportional mortality from measles occurred in Willesden, Bristol, Wolverhampton, West Bromwich, Warrington, Barrow-in-Furness, and Sunderland; from whooping-cough in West Ham; and from diarrhœa in Liverpool, St. Helens, Warrington, Rhondda, and Merthyr Tydfil. The mortality from scarlet fever, from diphtheria, and from "fever" showed no marked excess in any of the large towns. No fatal case of small-pox was registered either in London or in any of the 75 other large towns. The number of small-pox patients remaining under treatment in the Metropolitan Asylums Hospitals, which had been seven, six, and four at the end of the three preceding weeks, had risen again to five at the end of last week; two new cases were admitted during the week, against three, one, and one in the three preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital at the end of the week was 2499, against 2356, 2427, and 2473 at the end of the three preceding weeks; 354 new cases were admitted during the week, against 292, 325, and 334 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 189, 144, and 140 in the three preceding weeks, further fell to 90 last week, and were 45 below the number in the corresponding period of last year. The causes of 36, or 1·0 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Portsmouth, Bristol, Nottingham, Salford, Bradford, Leeds, Newcastle-on-Tyne, and in 49 other smaller towns; the largest proportions of uncertified deaths were registered in Hanley, Birmingham, Liverpool, Bury, Hull, and Rhondda.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 15·7, 16·1, and 16·5 per 1000 in the three preceding weeks, declined again to 14·7 per 1000 during the week ending July 8th, but was 3·1 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 7·6 in Perth and 8·9 in Leith to 15·7 in Glasgow and 17·1 in Paisley. The 449 deaths in these towns included 26 which were referred to whooping-cough, 14 to measles, 13 to diarrhœa, three to diphtheria, and one to scarlet fever, but not any to small-pox or to "fever." In all 57 deaths resulted from these principal infectious diseases last week, against 74, 60, and 65 in the three preceding weeks. These 57 deaths were equal to an annual rate of 1·7 per 1000, which was 0·4 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 29, 18, and 31 in the three preceding weeks, declined again last week to 26, of which 14 occurred in Glasgow, eight in Edinburgh, and three in Paisley. The deaths from measles, which had been 28, 18, and 17 in the three preceding weeks, further declined to 14 last week, and included nine in Glasgow and four in Edinburgh. The fatal cases of diarrhœa, which had been 15, 15, and 14 in the three preceding weeks, further fell last week to 13, of which six were registered in Glasgow, three in Edinburgh, and three in Aberdeen. The deaths from diphtheria, which had been one, four, and one in the three preceding weeks, rose again to three last week. The deaths referred to diseases of the respiratory organs in these towns, which had been 63, 74, and 68 in the three preceding weeks, further declined last week to 65, and were 23 below the number in the corresponding period of last year. The causes of 22, or more than 4 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 17·2, 17·9, and 14·9 per 1000 in the three preceding weeks, rose again to 16·9 per 1000 during the week ending July 8th. During the past four weeks the death-rate has averaged 16·7 per 1000, the rates during the same period being 12·1 in London and 15·5 in Edinburgh. The 123 deaths of persons belonging to Dublin registered during the week under notice were 15 in excess of the number in the preceding week and included eight which were referred to the principal infectious diseases, against three, six, and seven in the three preceding weeks; of these, six resulted from diarrhœa and one each from measles and from scarlet fever, but not any from small-pox, diphtheria, whooping-cough, or "fever." These eight deaths were equal to an annual rate of 1·1 per 1000, the death-rates last week from the principal infectious diseases being also 1·1 per 1000 both in London and in Edinburgh. The fatal cases of diarrhœa, which had been two in each of the two preceding weeks, increased last week to six. The 123 deaths in Dublin last week included 30 of children under one year of age and 30 of persons aged 60 years and upwards; the deaths of infants considerably exceeded the number recorded in the preceding week, while those of elderly persons showed a slight excess. One inquest case and one death from violence were registered; and 52, or more than two-fifths, of the deaths occurred in public institutions. The causes of eight, or nearly 7 per cent., of the deaths registered in Dublin last week were not certified.

VITAL STATISTICS OF LONDON DURING JUNE, 1905.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 6·8 per 1000 of the population, estimated at 4,684,794 persons in the middle of the year. In the three preceding months the rates had been 6·0, 5·6, and 6·2 per 1000 respectively. The lowest rates last month were recorded in Kensington, Chelsea, Hampstead, Holborn, Greenwich, and Woolwich; while the highest rates occurred in Hammersmith, Fulham, Shoreditch, Bethnal Green, Stepney, and Poplar. Small-pox was slightly less prevalent than it had been in the preceding month; of the eight cases notified during June two belonged to St. Pancras, two to Bethnal Green, and one each to the City of Westminster, Stoke Newington, Shoreditch, and Greenwich. The Metropolitan Asylums hospitals contained four small-pox patients at the end of last month, against 20, 16, and nine at the end of the three preceding months; the weekly admissions averaged two, against four, four, and two in the three preceding months. The prevalence of scarlet fever was slightly greater than in the preceding month; among the various metropolitan boroughs this disease was proportionally most prevalent in Fulham, Shoreditch, Bethnal Green, Poplar, and Stepney. The number of scarlet fever patients in the Metropolitan Asylums hospitals, which had been 1997, 2152, and 2236 at the end of the three preceding months, had further risen to 2444 at the end of last month; the weekly admissions averaged 301, against 272, 266, and 302 in the three preceding months. Diphtheria was considerably more prevalent during June than in either of the two preceding months; the greatest proportional prevalence of this disease occurred in Hammersmith, Fulham, Stoke Newington, Bethnal Green, Poplar, and Lambeth. The Metropolitan Asylums hospitals contained 715 diphtheria patients at the end of June, against 788, 719, and 684 at the end of the three preceding months; the weekly admissions averaged 111, against 98, 83, and 89 in the three preceding months. The prevalence of enteric fever showed but very little variation from that recorded in the preceding month; among the various metropolitan boroughs this disease was proportionally most prevalent in Kensington, Hammersmith, the City of Westminster, Hackney, Finsbury, and Bethnal Green. The number of enteric fever patients remaining under treatment in the Metropolitan Asylums hospitals at the end of last month was 78, against 68, 65, and 80 at the end of the three preceding months; the weekly admissions averaged 10, against 11, 11, and 14 in the three preceding months. Erysipelas was proportionally most prevalent in Paddington, St. Marylebone, Finsbury, the City of London, Shoreditch, and Deptford. The 28 cases of puerperal fever notified during the month included four in Camberwell, and three each in Hammersmith, Islington, Stepney, and Wandsworth.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in public institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ending July 1st the deaths of 4349 persons belonging to London were registered, equal to an annual rate of 12·1 per 1000; in the three preceding months the rates had been 15·5, 15·1, and 14·0 per 1000. The rates last month ranged from 7·0 in Hampstead, 8·4 in Lewisham, 8·7 in the City of London, 9·2 in Deptford, 9·4 in Wandsworth, and 10·0 in Woolwich, to 14·2 in St. Marylebone, 14·3 in Finsbury, 14·4 in Poplar and in Southwark, 15·7 in Shoreditch, and 15·9 in Holborn. The 4349 deaths from all causes in London last month included 443 which were referred to the principal infectious diseases; of these, five resulted from small-pox, 155 from measles, 36 from scarlet fever, 36 from diphtheria, 117 from whooping-cough, 11 from enteric fever, one from ill-defined pyrexia, and 82 from diarrhœa, but not any from typhus fever. No death from any of these diseases was recorded in the City of London; among the metropolitan boroughs they caused the lowest death-rates in Chelsea, Hampstead, City of Westminster, Lambeth, Deptford, Greenwich, and Woolwich; and the highest rates in Paddington, Fulham, Stoke Newington, Hackney, Holborn, Bethnal Green, Poplar, and Battersea. Of the five fatal cases of small-pox three belonged to Lewisham, one to Hackney, and one to Shoreditch. The 155 deaths from measles were 81 below the corrected average number; among the various metropolitan boroughs this disease was proportionally most fatal in Paddington, Fulham, St. Marylebone, Stoke Newington, Hackney, Poplar, and Battersea. The 36 fatal cases of scarlet fever were nine fewer than the average for the corresponding periods of the ten preceding years; the greatest proportional mortality from this disease occurred in Kensington, Islington, Finsbury, Wandsworth, and Camberwell. The 36 deaths from diphtheria showed a decline of 65 from the corrected average number; among the various metropolitan boroughs this disease was proportionally most fatal in

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JUNE, 1905.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1905.	NOTIFIED CASES OF INFECTIOUS DISEASE.										DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON	4,684,794	8	1397	536	—	94	1	28	376	—	2440	6·8	5	135	36	36	117	—	11	1	82	443	1·3	4349	12·1	91
West Districts.																										
Paddington	147,935	—	28	11	—	1	—	—	17	—	57	5·0	—	13	—	—	6	—	—	—	1	20	1·8	138	12·2	138
Kensington	180,083	—	17	13	—	5	—	—	4	—	39	2·8	—	6	3	—	5	—	1	—	4	19	1·4	169	12·2	93
Hammersmith	119,037	—	36	24	—	8	—	3	12	—	83	9·1	—	3	—	3	5	—	—	—	1	13	1·4	109	11·9	122
Fulham	157,210	—	80	32	—	4	—	—	9	—	125	10·4	—	9	1	—	4	—	1	—	9	24	2·0	157	13·0	99
Chelsea	74,496	—	9	2	—	—	—	—	3	—	14	2·5	—	1	—	—	2	—	—	—	—	3	0·5	61	10·7	99
City of Westminster	175,606	1	39	9	—	5	—	2	18	—	74	5·5	—	3	1	—	2	—	—	—	4	10	0·7	159	11·8	92
North Districts.																										
St. Marylebone	129,453	—	22	12	—	1	—	2	20	—	57	5·7	—	12	—	—	—	—	—	—	1	13	1·3	141	14·2	93
Hampstead	88,142	—	15	4	—	1	—	—	—	—	20	3·0	—	—	—	1	—	—	—	—	—	1	0·1	47	7·0	51
St. Pancras	236,183	2	37	29	—	4	—	2	12	—	86	4·8	—	9	3	1	5	—	—	—	—	18	1·0	240	13·3	61
Islington	342,994	—	116	20	—	7	—	3	18	—	164	6·2	—	3	5	3	15	—	—	—	3	29	1·1	341	13·0	102
Stoke Newington	52,828	1	13	12	—	—	—	—	1	—	27	6·7	—	3	—	1	4	—	—	—	1	9	2·2	47	11·6	73
Hackney	228,479	—	61	34	—	18	1	—	18	—	132	7·5	1	17	1	1	10	—	—	—	8	38	2·2	198	11·3	92
Central Districts.																										
Holborn	56,481	—	7	3	—	1	—	—	3	—	14	3·2	—	2	—	1	3	—	—	—	2	8	1·8	69	15·9	100
Finsbury	98,207	—	30	7	—	5	—	1	12	—	55	7·3	—	1	3	2	2	—	—	—	1	9	1·2	108	14·3	76
City of London	22,425	—	5	—	—	—	—	—	6	—	11	6·4	—	—	—	—	—	—	—	—	—	—	—	15	8·7	111
East Districts.																										
Shoreditch	116,566	1	71	15	—	3	—	2	16	—	108	12·1	1	4	1	1	3	—	1	—	3	14	1·6	140	15·7	103
Bethnal Green	130,401	2	62	22	—	7	—	—	13	—	106	10·6	—	7	1	1	2	—	1	1	5	18	1·8	141	14·1	98
Stepney	305,466	—	125	35	—	6	—	3	34	—	203	8·7	—	10	2	3	5	—	2	—	10	32	1·4	324	13·8	102
Poplar	170,220	—	88	34	—	2	—	—	19	—	143	10·9	—	11	1	4	8	—	—	—	8	32	2·4	188	14·4	108
South Districts.																										
Southwark	208,528	—	60	27	—	2	—	—	19	—	108	6·8	—	4	—	5	4	—	—	—	5	18	1·1	230	14·4	106
Bermondsey	129,006	—	43	16	—	2	—	1	6	—	68	6·9	—	3	1	1	3	—	—	—	2	10	1·0	138	13·9	110
Lambeth	313,045	—	78	76	—	3	—	1	27	—	185	7·7	—	2	1	2	3	—	2	—	6	16	0·7	264	11·0	83
Battersea	177,532	—	57	16	—	2	—	—	9	—	84	6·2	—	18	1	2	8	—	1	—	—	30	2·2	169	12·4	96
Wandsworth	265,392	—	91	29	—	1	—	3	28	—	152	7·5	—	1	5	2	7	—	—	—	1	16	0·8	192	9·4	75
Camberwell	271,240	—	79	9	—	4	—	4	22	—	118	5·7	—	9	5	1	2	—	1	—	2	20	1·0	212	10·2	69
Deptford	114,495	—	41	14	—	1	—	—	16	—	72	8·2	—	—	1	—	2	—	—	—	1	4	0·5	81	9·2	67
Greenwich	103,493	1	22	7	—	1	—	—	4	—	35	4·4	—	2	—	1	—	—	—	—	2	5	0·6	82	10·3	88
Lewisham	144,420	—	36	15	—	—	—	1	5	—	57	5·1	3	—	—	—	6	—	—	—	1	10	0·9	93	8·4	59
Woolwich	125,372	—	29	9	—	—	—	—	4	—	42	4·4	—	2	—	—	1	—	—	—	1	4	0·4	96	10·0	62
Port of London	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

Hammersmith, Stoke Newington, Finsbury, Poplar, and Southwark. The 117 deaths from whooping-cough were 28 below the average number in the corresponding periods of the ten preceding years; this disease showed the greatest proportional mortality in Stoke Newington, Hackney, Holborn, Poplar, and Battersea. The 12 fatal cases of "fever" were only one-half of the corrected average number; two of the deaths belonged to Bethnal Green, two to Stepney, and two to Lambeth. The 32 deaths from diarrhœa were 30 below the average number in the corresponding periods of the ten preceding years; this disease was proportionally most fatal in Fulham, Hackney, Holborn, Bethnal Green, Stepney, and Poplar. In conclusion, it may be stated that the aggregate mortality in London last month from the principal infectious diseases was more than 33 per cent. below the average.

Infant mortality, measured by the proportion of deaths among children under one year of age to registered births, was equal to 91 per 1000. The lowest rates of infant mortality were recorded in Hampstead, St. Pancras, Camberwell, Deptford, Lewisham, and Woolwich; and the highest rates in Paddington, Hammersmith, the City of London, Poplar, Southwark, and Bermondsey.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeon C. M. Beadnell to the *New Zealand* on completing. Staff Surgeon F. W. Parker to the *Sapphire*, additional, for the *Sapphire II.* Surgeons: A. R. Schofield to the *New Zealand*; C. B. Fairbank to the Gibraltar Hospital and for dockyard and naval extension works.

ROYAL ARMY MEDICAL CORPS.

Captain S. Mason resigns his commission (dated July 12th, 1905). Lieutenant H. St. M. Carter, from the Seconded List, to be Lieutenant (dated July 2nd, 1905).

Lieutenant-Colonel E. Butt is appointed to the recruiting staff in Ireland, vice Colonel J. G. MacNeece, who takes up duty as Principal Medical Officer at Malta on promotion. Major C. R. Kilkelly, C.M.G., is appointed Governor of Osborne House, Isle of Wight, the convalescent home for officers of the Army and Navy.

MILITIA.

Infantry: 3rd Battalion the Dorsetshire Regiment: Surgeon-Lieutenant-Colonel D. Curme retires under the conditions of paragraph 55, Militia Regulations, with permission to retain his rank and to wear the prescribed uniform (dated May 27th, 1905).

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Major J. P. Massingham to be Surgeon-Lieutenant-Colonel (dated June 27th, 1905).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 2nd Hampshire: Surgeon-Lieutenant P. N. Vellacott resigns his commission (dated July 12th, 1905). 1st Monmouthshire: The undermentioned officer resigns his commission: Surgeon-Lieutenant J. Hurley (dated July 12th, 1905).

Royal Engineers (Volunteers): 1st Devonshire and Somersetshire: Surgeon-Lieutenant E. G. Stocker to be Surgeon-Captain (dated July 12th, 1905).

Rifle: 1st (Renfrewshire) Volunteer Battalion Princess Louise's (Argyll and Sutherland Highlanders): Surgeon-Lieutenant C. W. Marshall to be Surgeon-Captain (dated July 12th, 1905).

THE MOTOR VOLUNTEER CORPS.

Charles Buttar to be Surgeon-Lieutenant (dated June 19th, 1905).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

East Surrey Bearer Company: Major J. J. de Z. Marshall is granted the honorary rank of Lieutenant-Colonel (dated June 12th, 1905).

ROYAL ARMY MEDICAL CORPS: EXAMINATION OF MAJORS FOR PROMOTION.

A July Army Order states: For 1906 the special subject for the examination of majors for promotion to lieutenant-colonel, referred to in para. 5 (*a*) and (*b*), App. VIII.B. of the King's Regulations, will be as follows: *Subject* 5 (a)—Medical history of the more important campaigns. The medical history of the South African War as described in "Report on the Medical Arrangements in the South African War," by Surgeon-General Sir W. D. Wilson, 1904, Parts I., II., III., and IV., VIII. and XVI.; and appendices referred to therein. *Subject* 5 (b)—A general knowledge of the army medical services of other powers. The medical organisation of the Japanese army as described in the "Handbook of Medical Organisation of Foreign Armies, 1902," or the medical organisation of a foreign army, selected by the candidate, described within similar limits.

NAVAL MEDICAL SUPPLEMENTAL FUND.

At the quarterly meeting of the directors of the Naval Medical Supplemental Fund, held on July 11th, Sir J. N. Dick, K.C.B., R.N., being in the chair, the sum of £80 was distributed among the several applicants.

NATIONAL DEFENCE.

We would call our readers' attention to the debate in the House of Lords on July 10th on the motion of the Earl of Wemyss regarding home defence and especially to the forcible and decisive speech delivered by Earl Roberts on that occasion. Field-Marshal Lord Roberts has the experience and qualifications to entitle him, if any man has, to speak with authority on such subjects as Imperial defence and the needs of the army. He emphatically declared that the lessons of the war in South Africa had been forgotten; that our armed forces were now as unfitted and unprepared for war as they were then; and that the public was indifferent to the army and regardless of the fact that Britain was no longer a kingdom but an empire. We may add that there are, we fear, many persons in this country who are endowed with so little patriotic feeling and sense of national responsibility that they would be roused, but at the same time benefited, by reading an article in the *National Review* for June last entitled "Some Candid Impressions of England by a German Resident." While we do not by any means agree with the German resident in all that he says, we have, nevertheless, with similar candour to his, to confess that his contribution contains too much truth to be pleasant. Commenting on the speech of Earl Roberts, Lord Raglan, President of the National Service League, in a letter to us, says: "Let us remember that no Government can be expected officially to support a noble appeal for national duty such as that made by Lord Roberts unless the people themselves show that they are ready to respond. And there is no surer way of helping the great soldier who has rendered such signal services to the country than by joining the National Service League and thus forming that body of public opinion to which a patriot statesman can appeal."

OUR VOLUNTEER FORCES AND THE PHYSICAL STANDARD.

Things are not going well with the new army reform proposals. The War Office has, under a circular issued last month and amended under date July 11th, called for reports to be sent in by Oct. 1st as to the physical standard of the Volunteers. The War Office instructions to the medical officers of this force are to the effect that they are to make a strict examination into the physique of the men. The circular in question has apparently been issued because the Government professes to have decided that the Volunteers are not in reality wanted for home defence and that, taken as a whole, they are unfit or useless for oversea warfare. The immediate object in view is to ascertain the number of Volunteers on the strength fit for service abroad. This has opened up a very big and contentious question which will be certain to provoke a good deal of discussion. In the meantime the carrying out of the War Office instructions is a matter of some difficulty and entails much expenditure of time and labour if the medical inspections are to be carried out properly. Civilian practitioners, who are Volunteer medical officers for war purposes, naturally object to neglect their civilian practice in order to inspect several hundred men for nothing. Mr. Arnold-Forster will, no doubt, be able to throw some further light upon the intentions of the Government in regard to the Volunteers in the promised debate thereon, but he stated in the House on July 12th that it was not proposed to grant any special allowance to defray the cost of medical examination, although the matter was receiving consideration.

THE RUSSIAN RED CROSS SOCIETY.

The executive committee of the Russian Red Cros

Society has asked the Mayor of Moscow to send a representative to the committee formed in the society with the object of changing the statutes of the Russian Red Cross Society in order that its operations in peace time may be on the same lines as now—in time of war—so as to keep touch with all social bodies permanently.

THE WAR IN THE FAR EAST.

If one of the most elementary principles in war consists in learning all that can be possibly found out about the intentions of the enemy while studiously concealing all knowledge of your own from him, then the Japanese have shown themselves past masters in that art. What has been going on behind the impenetrable veil of their apparent inactivity of late we do not know, but there has been a relatively long lull in the military operations in Manchuria. This lull is very suggestive of the belief that some comprehensive and sweeping movement against the Russians on the part of the Japanese armies is being projected and will soon take place.

A telegram from Godsiadan (Manchuria) announces the death of General Timofieff, inspector of hospitals, who was wounded by a bayonet during the battle of Mukden.

Correspondence.

"Audi alteram partem."

SOME COMPLICATIONS OCCURRING IN PULMONARY TUBERCULOSIS, WITH REFERENCE TO PROGNOSIS AND TREATMENT.

To the Editors of THE LANCET.

SIRS,—There has been much discussion in the medical journals during the past few months as to whether sanatorium treatment is, or is not, worth while. This has led me to try, by careful study of the records of cases treated at Woodburn Sanatorium, Edinburgh, during four years (1899 to 1903), and by consideration of their after-history, to ascertain the causes of failure and the reasons for success. It is evident that the question can never be settled by giving definite statistics of so many "cured" per cent., for the numbers (if correct at the moment) would require readjustment in six months' time. All patients for years after their period of sanatorium treatment must be classed as "partially restored," but at the same time none of them are stationary in that class. The term "holding their own" too often means "losing ground." They are either gradually passing into the class of "failure, chronic invalidism, and fatal result," or they are slowly and surely progressing towards "perfect health," the term of "perfect health" meaning that the invading bacilli are dead or eliminated and that the patient is free from the danger of a possible relapse. To be sure that this is so implies more than to know that all signs of active disease have disappeared from the lungs. It implies more, even, than to know that the digestive organs are perfectly performing their functions and that the nervous and muscular systems have fully recovered their normal tone. These conditions always precede perfect cure, they are of value as indicating that cure is in good progress, but they do not, individually or collectively, give a guarantee that danger of a relapse is non-existent.

In considering the class of cases in which the treatment is a failure one must remember that in many instances it is found that the actual amount of invasion of the lungs at the time of admission gives small hope of any possibility of cure; in others, the general nutrition of the body is so reduced by continuous toxic poisoning, with consequent widespread degeneration, that it becomes impossible to restore nutrition and the specific resistance to the disease. As a result of these conditions various untoward symptoms have arisen, often simply the exaggeration of the ordinary symptoms of any ordinary case; or else complications have set in which are due to the involvement of other organs by spread of the infection from the primary disease in the lungs. In such cases the cure may not be impossible, but it will probably be long delayed. It is a recognised fact that an early case of pulmonary tuberculosis with no complications is comparatively easy to "cure." When there is merely slight consolidation in one or both lungs, with any of the classical attendant symptoms of cough, anorexia, emaciation, weak circulation, &c., probably the functional disturbance will be overcome by open-air methods in the course of a few months. In such a case the organic lesion remains for longer time, but it is inactive and is undergoing a slow process of elimination.

The symptoms which cause difficulty and delay in the restoration of the patient to complete health are all of them probably due to the results of slow and continuous toxic poisoning. By the action of this poison the tissues, particularly the muscles, are deprived of part of their nitrogenous constituents, becoming more or less devitalised and unable to perform their normal functions. A vicious circle is set up and the complications, which were only functional to begin with, become organic, with definite histological changes and alteration of structure. Dyspepsia, for instance, is nearly always present at the beginning of a tuberculous illness; when functional it vanishes after a few days of rest, fresh air, and easily digestible food; when it persists, forming a serious obstacle to the assimilation of food and the nourishment of the body, it should no longer be considered as functional but as an organic complication. It then exists as chronic dyspepsia, which is evidenced by a flabby, coated tongue and by a more or less dilated stomach. It is often associated with obstinate constipation. Poisoning of the nervous system is manifested by insomnia or by various hysterical symptoms which disappear as the general strength of the body is restored. Poisoning, with consequent wasting, of the muscular system is always marked and is widespread in its effects. It accounts partly for the languor and lassitude which are often the initial symptoms of the disease observed by the patient himself. It affects the muscular walls of the stomach and intestines, causing weak and irregular contraction, which in its turn gives rise to intractable dyspepsia and constipation. More important than all, it affects the muscular tissue of the heart and thus, if unchecked in its progress, it strikes sooner or later at the very life of the patient.

The knowledge that so many untoward symptoms are traceable to wasting of the nitrogenous constituents of the tissues gives the physician a sure basis whereon to rest a successful treatment, and a therapeutic agent of great value is ready to hand for its accomplishment in the administration of raw meat. Open-air treatment, *per se*, cannot be considered as an unfailing cure for pulmonary tuberculosis, but that it is much more effective when combined with raw meat treatment may be easily verified by trial. To obtain the desired effect the treatment must be carried out thoroughly. It cannot give good results if it is tried for a few days or weeks and then dropped. Success comes to those who can steadily maintain the treatment until the end is attained and the cure is completed. The old adage that "as we sow, so shall we reap," is true in this as in every other phase of life. Therefore we find that active tuberculous disease cannot be eradicated unless it be vigorously combated. Further, we find that in ratio as the application of the treatment is lax so will the recovery be slow, and in proportion as the application is thorough so will the improvement it brings be rendered more certain.

In the hope that these few observations will give fresh encouragement to some who think that the permanent results of sanatorium treatment have not fulfilled the promise of early days,—I am, Sirs, yours faithfully,

ISABELLA MEARS, L.R.C.P. Irel.,
Medical Superintendent, Woodburn Sanatorium, Edinburgh.

July 3rd, 1905.

MEDICAL BARRISTERS.

To the Editors of THE LANCET.

SIRS,—In your last number you record the fact of five registered medical men being "called to the Bar" on July 5th. As it would be of great professional interest to secure a complete list of all "medical barristers" I have already succeeded in compiling the names of some six score. It is, of course, very much more common for medical men to become lawyers than *vice versâ*, but there are several examples of the latter procedure. Further I have not yet met with the name of a "medical solicitor." Should any of your readers

be able to add to my list from the records either of the living or of the dead I should be extremely grateful.

I am, Sirs, yours faithfully,

STANLEY B. ATKINSON,
Honorary Secretary, Medico-Legal Society.

22, Albemarle-street, W., July 10th, 1905.

LEISHMAN-DONOVAN DISEASE.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of June 3rd, p. 1484, there appears an article by Captain Leonard Rogers, I.M.S., on the Conditions affecting the Development of Flagellated Organisms from Leishman Bodies and their Bearing on the Probable Mode of Infection. The writer details the results of experiments on the behaviour of the Leishman-Donovan bodies in various media such as sterile and distilled water, degrees of tonicity in salt solutions, and under anaerobic conditions and those of hyper-oxygenation. These results are negative and, as he says, prove nothing. One observation he made, however, may turn out to be of importance in pointing to the channel of infection in man. He himself and others also have shown that blood diluted with water, to which sodium citrate has been added to prevent coagulation, shows after incubation in the cold that there is an increase in the number of, and alteration in the form of, these bodies, provided, of course, that they were present in the original blood. Captain Rogers now shows that by acidulating this citrated blood better and more luxurious growth is obtained and a larger number of flagellate forms appear than in citrated blood of neutral or alkaline reaction kept under similar conditions.

Now this is an interesting, and is very likely to prove to be an important, fact, but when this writer proceeds to build up on this and some subsidiary facts, to be mentioned hereafter, that on this account the disease is probably transmitted by a blood-sucking insect, I think it is perhaps rather difficult to follow him. Speaking of the rapid development of the organism in acid media, he says: "This striking fact strongly indicates the acid medium to be the optimum for the flagellation of the parasite and also points to the acid-containing contents of the stomachs of some blood-sucking insects as the place in which the parasite undergoes the extra-corporeal stage of its existence."

It is true that there is a strong precedent already established for supposing tropical diseases like this to be spread by the agency of blood-sucking insects. In the case of disease caused by malarial organisms, by piroplasma, by trypanosomes, by proteosoma and halteridia, blood-sucking flies or bugs have proved to be connected causally. It is natural, therefore, I say, that this agency should be suspected in the case of kala-azar and tropical splenomegaly, and this, indeed, may well turn out to be the case, but what I submit is that at present there is little warrant for believing this to be the case and other paths of transmission appear at least equally probable. Captain Rogers and other observers of proved capacity have directed their attention to such a possibility and the bed bug has from the beginning been suspected. The experiments directed to this end have, so far as I know, been negative and in the paper under review Captain Rogers fails to find any suggestive forms in the bodies of bugs fed on sufferers from kala-azar. In one experiment he mixed the blood from the splenic puncture containing the "bodies" with the stomach contents of recently-fed bugs but he found no development of the organisms, and all the conclusions which he is able to draw are the indefinite ones that "the experiments at least show that the conditions are not inimical to the continued life of the parasite, but that is all that can be said at the present time."

The diseases above enumerated, where transmission by insects is proved, are much more of the nature of primary diseases of the blood than Leishman-Donovan disease is. In all these conditions the parasites are found regularly and constantly in the blood and peripheral vessels but this is not so in kala-azar and its congeners. The Leishman-Donovan body swarms in the deep viscera, in the bone marrow, and is also found in some visceral blood-vessels and very markedly in the surfaces of ulcer of the intestinal tract and of the skin, but it is not found in the blood except occasionally as a late terminal infection and then apparently in the white corpuscles, a phenomenon rather suggesting phagocytosis than parasitism. If it is to be carried in its extra-corporeal stages by blood-sucking insects the infection must exist in the peripheral blood, either in an ultra-microscopic form, in which case it finds a probable parallel in yellow fever, or the parasite must appear in the blood-stream under certain unknown conditions in the life of the host (like filaria nocturna). There is no reason, however, to have recourse to either of these propositions without more proof. In this connexion I may say that although the parasite is readily found in the ulcers of the skin, yet I believe that neither bugs, fleas, nor mosquitos ever bite ulcerated surfaces or even inflamed parts. If the parasite infects the otherwise healthy subcutaneous tissues it might find its way into an insect during biting, but the presence of the body has not been demonstrated in healthy subcutaneous tissue. It has been proved, however, that the parasite develops in water and better in acidulated water, and from this, taken in conjunction with the fact that practically in all cases of tropical splenomegaly a discharge of parasites takes place in abundance from the ulcerated large intestines, it is not a very bold step to assume, or at least to suggest, that the intestinal tract is the natural source of infection. The flagella which form are organs of locomotion and not of penetration and suggest a plentiful fluid medium rather than the more viscid stomach contents of insects. Most flagellate bodies which exist as such in the blood lose their motility when taken into the stomach of an intermediate host; at any rate, I have proved this to my own satisfaction in the case of trypanosomes in the blood of the fresh-water tortoise and their subsequent behaviour in the stomach of the leech.

Drawing analogies between diseases of different types is unsafe but it is noteworthy that cholera, enteric fever, and dysentery, all associated with ulceration or denudation of the intestine caused by their respective specific germs, are all (at any rate the first two) transmitted by fæcal infection of water and so back by a direct path to the alimentary canal of man. If the growth of the bodies in acid fluids suggests the acid stomach contents of bugs, why should it not equally suggest the acid stomach contents of man or of many other animals as the natural goal for the further growth of the organism? Splenic enlargement is one of the most marked characteristics of the disease but that organ is in as close physiological connexion with the alimentary system as it is with the blood-forming system. Witness the almost constant infection of the spleen by the Eberth bacillus in cases of enteric fever.

One other point Captain Rogers adduces in favour of his bug transmitting theory, and that is by his observations in Assam on kala-azar, which tend to show that that disease is a house infection and, furthermore, that it was transmitted to some Europeans by their relations with native women suffering from the disease. But transmission by fæcal soiling of clothes, floors, or the dust of compounds or of the water-supply would be almost equally favoured by such intercourse, and these persons ran the risk of taking certain other diseases which result from propinquity and are certainly not transmitted by insect agency.

To sum up the evidence *pro* and *con.* for transmission by blood or water agency:—1. Leishman-Donovan disease is not a blood disease properly speaking, for the organism is not found under ordinary conditions in the peripheral stream. It is a tissue infection. 2. The parasites concerned have never, to my knowledge, been found in the bodies of bugs, mosquitoes, or other blood-sucking insects, though much attention has been directed to this point. 3. There is practically in all cases a large discharge of infective material constantly taking place from the ulcerated intestine and in many cases also from the surfaces of ulcers on the skin or in the mouth, by all of which paths (knowing the habits of the native of India) water infection is peculiarly favoured. 4. Bugs are ubiquitous in India. The disease, however, is commonest in the swampy water-logged countries such as Bengal, Assam, and Madras, and practically unknown in the drier countries of Bombay, the high plateau of Central India, and in the Punjab.

In conclusion, then, I submit that what scanty evidence there is goes rather to point to the transmission of disease associated with the names of Leishman and Donovan by water carriage than by the instrumentality of insects.

I am, Sirs, yours faithfully,

PERCIVAL MACKIE, F.R.C.S. Eng.,
Lieutenant, I.M.S.

Goona, Central India, June 22nd, 1905.

THE MEANING OF "CASUALTY" PATIENTS.

To the Editors of THE LANCET.

SIRS,—In Table I. of the excellent "Hospital Sunday Fund" Supplement to your issue of June 17th there are some (apparent) anomalies in the last column. Thus Guy's, with only *two-thirds* of the number of out-patients, shows *four times* as many "accidents and emergencies" as the London. Again, the London Temperance Hospital, with the same number of out-patients as Poplar, has only *one-half* the number of "accidents," &c. And the Royal Free, with a smaller number of out-patients than the Metropolitan, shows nearly *three times* as many "accidents," &c. If this column is meant to show cases treated in the casualty rooms the above figures are of great interest as raising a doubt whether, in some institutions, "casualty" cases are *confined* to "accidents and emergencies" alone.

I am, Sirs, yours faithfully,

July 7th, 1905. G. F. S.

THE CHICAGO STOCKYARDS.

PROSECUTION OF THE BEEF TRUST BY THE UNITED STATES GOVERNMENT.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

IT would seem, judging by the scant news which the telegraph agencies provide, that the Government of the United States of America is really determined to fight the Beef Trust. This is not only intensely interesting and important from the economic point of view but it also affects the public health. Cheap, clean, wholesome food is a primary necessity. An inquiry was made by the National Department of Commerce and Labour and for more than two years various small prosecutions were instituted in the civil courts. The last thing has been the inquiry held by the Federal Grand Jury. The sittings of this jury lasted three months and more than 100 witnesses were heard. The result is that 16 of the leading Chicago stockyard and packing firms will be indicted on various charges, including "combination in restraint of trade, conspiring to monopolise trade, and illegally granting and receiving rebates." As most of the transactions have been done through the telephone it is difficult to get evidence. Yet it is a matter of common belief that what has been described as "a voice on the telephone" fixes the price of nearly 90 per cent. of the cattle sold for slaughtering and also regulates the price of fruit and other articles of diet. By abolishing competitive buying the price of the animals purchased by the slaughterers is kept down. By abolishing competition in the sale of meat its price is maintained at an unnecessarily high figure. If this sort of combination is allowed to continue the Beef Trust, which is now also dealing in corn, or some other similar combine, will control the price of every loaf of bread. On one side the farmer and the cattle breeder will be at its mercy and on the other side the public will be forced to pay for food any price which the trust chooses to charge.

It is not necessary to insist on the dangers to public health likely to arise from such a monopoly. It is obvious from the descriptions given of the Chicago stockyards that the Beef Trust is not to be relied upon in matters of sanitation.[1] Mr. Ogden Armour is reported to have made some sort of reply to these criticisms but this reply has never reached THE LANCET Offices. The Chicago correspondent of the *Daily Mail* stated at the time when THE LANCET reports reached America that Mr. Armour had said that "THE LANCET article displayed woeful ignorance of packing houses and did not offer any practical suggestion for the improvement of their condition." As Mr. Armour is likely to have read the articles in THE LANCET it is very improbable that he ever made any such remark. Of course, THE LANCET does not profess to be an authority on the technique of the packing-house business except in so far as the interests of public health are concerned. For the sake of the health of the 50,000 to 60,000 workpeople employed in the Chicago stockyards, for the cause of humanity in dealing with the cattle about to be killed, on behalf of cleanliness, and for the securing, and the preservation of, the purity of the meat about to be exported to all parts of the world, many improvements were suggested. At the commencement of the series of articles in question this fundamental proposal is made:—

> In Great Britain and all over Europe the feeling gains ground that private slaughter-houses should be abolished and model public abattoirs instituted in their stead, either by the State or by the municipality.

Then it is pointed out that had this been done at Chicago, even at the low rate of charges made at the Berlin municipal abattoir, the city of Chicago would now be in receipt of an annual income of about £1,000,000. But the article continues in the following words:—

> It will scarcely be believed, but it is nevertheless a fact, that at Chicago not only is there no municipal abattoir but there are no private abattoirs in the technical sense of the term. It is true that millions of animals are slaughtered annually but they are not slaughtered in slaughter-houses. For many hours I wandered about the stockyards and I saw many animals killed but nowhere could I discover the smallest trace of a slaughter-house. The animals were killed not in abattoirs but in mills or factories—huge, hideous, box-shaped buildings five and six storeys high.

Then reproductions of photographs were published showing some of these factories and showing also that there is plenty of vacant ground in the immediate neighbourhood where the public authorities could build proper public slaughter-houses. So the first and fundamental improvement suggested was that, for the killing of animals, slaughter-houses should be constructed. These should be public slaughter-houses built according to the sanitary and humane principles established by a federal law and controlled by federal inspectors. There should be a proper bacteriological laboratory and quarantine station, as at Berlin, with convenient and safe arrangements for the railway traffic, the landing of cattle, and disinfection of cattle vans, as at the Prussian State railway station of the Berlin municipal slaughter-house. Then there should be a destructor for the carcasses of diseased animals as at the Hamburg municipal slaughter-house, model stables as at Anderlicht near Brussels, and model rules for the conveyance of meat to the retail shops as at Brussels. These are a few of the improvements that were suggested, not as fanciful hygienic ideals, but as reforms which have been realised in practice and in each case it was stated where they might be seen in working order.

It would seem that Mr. Armour is either very badly served or very badly informed, for to pretend in the face of this that no improvements were suggested is preposterous. But worse than this, here in London, shortly after the appearance of the articles in THE LANCET, at the chemical exhibition recently held at Covent Garden Theatre the agents of Mr. Armour exhibited the proof of the correctness of the statements made. They displayed at their stall a gigantic photograph of the Chicago stockyards and thus every visitor to the exhibition was able to see for himself that there are no slaughter-houses at the Chicago stockyards. Every visitor could see that such buildings as exist at the Chicago stockyards would be condemned in any country in the world where any law exists defining what a slaughter-house should be. The audacity of displaying such a photograph in London, where there are at least a few persons who know something about the subject, is a proof either of the most profound ignorance or of cynical indifference to the opinion of all who are capable of judging in such a matter.

Consequently if, as there is good reason to believe, the Government of the United States of America has come to the conclusion that the Beef Trust is a danger to the country from the economic point of view this is a good opportunity to urge that it also imperils the public from the health point of view. The Supreme Court of the United States has approved the decision of lower courts condemning one of the leading firms of packers, Messrs. Swift and Co., for conspiring illegally to fix prices; still this abuse continues. It seems as if convictions at law have little or no effect. Perhaps a Public Health Law abolishing private slaughter-houses would be more efficacious. In any case, the Government is as justified in defending the public health as the public purse and this seems the propitious moment for pressing forward both questions.

[1] THE LANCET, Jan. 7th, 14th, 21st, and 28th, 1905.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

University of Birmingham.

AT a meeting of the Council of the University of Birmingham held on July 5th, the Vice-Chancellor presiding, Professor R. Saundby, M.Sc., M.D., LL.D., F.R.C.P., was appointed the representative of the University on the General Council of Medical Education and Registration of the United Kingdom. Professor Saundby was also appointed a delegate to represent the medical faculty of the University at the International Congress of Medicine to be held in Lisbon in 1906. Sir Archibald Geikie, LL.D., F.R.S., has accepted the invitation of the Council to deliver the Huxley lecture in 1906. Dr. C. E. Purslow has been appointed Ingleby lecturer for the year 1906. Dr. A. Stanley Barnes has been appointed examiner for the Russell Memorial prize for the current year.

The New University Buildings.

The new University buildings are rapidly rising and an official visit was recently paid to them by the members of the court of governors and of the city council. They comprise a large central hall and three blocks devoted to engineering, metallurgy, and mining. The hall, in which degree congregations, other university functions, and examinations will be held, is possessed of considerable architectural charm; it has a length of 170 feet and a height of 77 feet. It is expected to be ready for use in about 18 months' time. In the construction of the three blocks the end which has been constantly kept in view has been to combine an adequate amount of practice with a sound scientific training. It is maintained that in consequence the period of apprenticeship may be reduced. The buildings include a power station which will supply the University with all the electricity required for lighting and for power purposes; a boiler house containing locomotive boilers, gas engines, and marine steam engines; an iron foundry and forge, with smith's hearths, anvils, tools, cupola, patterns, and moulds for casting; a pattern-making shop and a drawing office measuring 100 feet by 50 feet which is described by experts as the finest in Europe. The metallurgical department includes foundries for smelting steel and brass; a room for melting ores by electricity and furnaces for dealing with the ores of gold, silver, copper and lead; a chlorination barrel for the treatment of complex gold ores; and a cyaniding plant for demonstrating South African and similar metallurgical practice. A machine shop is provided for cutting up metals for analysis and for crushing ores preparatory to assay work as well as an experiment room in which there are shortly to be constructed wind furnaces and gas muffles. Special rooms are provided for the measurement of high temperatures, for the microscopical examination of metals, and for electro-metallurgy, including electro-plating. The work in the metallurgical department is of a nature that may require the attention of students by night as well as day. In connexion with the mining department an experimental coal mine has been constructed. It is 12 feet below the surface and the workings extend in all directions for something like three-quarters of an acre, the "roads" on different levels being on a scale roughly about one-third of the actual dimensions. In it practical instruction will be given in underground surveying and levelling and in connecting surface and underground surveys. Mine ventilation, timbering, and the different systems of haulage will all be studied on the spot. The scheme of instruction will include both coal mining and metalliferous mining in view of the fact that many students come from India and the colonies. Some idea of the size of the buildings and of the nature of their equipment will be gathered from the fact that their estimated cost is £450,000.

The New Dental Hospital.

The new Dental Hospital was opened a week ago by Sir Oliver Lodge (principal of the University). He was accompanied by the Lord Mayor and Lady Mayoress, a distinguished company of medical men, members of the city council, and representatives of dental hospitals in London, Manchester, Liverpool, and Newcastle-on-Tyne. The cost of the building is estimated at £8500 and the equipment at a further £1500. Towards this, £8500 have been promised. The new building has a pleasing frontage of red brick with stone dressing. It consists of four storeys and special attention has been paid to the provision of the greatest possible amount of light. It is built on a site which slopes in such a way that an excellent north and north-east light is secured which cannot be interfered with by any other buildings. On the ground floor there are a general waiting hall and accommodation for the staff, also class room, students' room, and museum. On the first floor there are rooms for operations, with and without anæsthetics also a lecture hall. There are separate recovery rooms for male and female patients. On the second floor there are filling and saving rooms, specially lighted and well equipped with operating chairs. There is accommodation for 50 chairs. The top floor possesses an up-to-date mechanical department and workroom for making artificial teeth and crowns. In a word, everything which is found in the best private dental surgeries is provided at the new hospital.

Is Birmingham to have a Natural History Museum?

In view of the fact that the council is at present deliberating how to allocate certain land in the neighbourhood of the municipal buildings the above question has been again asked and considerable correspondence has taken place in the press. Dr. Bridge, professor of zoology, addressed a long letter to the *Daily Post* urging the pressing need for such an institution. He emphasised the ethical no less than the educational value of nature study, he spoke of the means which it afforded for cultivating habits of observation and inference, and evidently knowing that members of city councils are apt to take a too utilitarian view of such matters he did not neglect to point out that designers and artisans might find much that would be suggestive to them in their work from a contemplation of animal and plant forms. It is greatly to be desired that the present movement may be successful. It is well known that there are many very valuable private collections in the city and it may be permissible to hope that in the course of time they will find their way to such a museum.

The Charity Organisation Conference.

Representatives of charity organisation and relief societies throughout the country held a few days ago a conference in Birmingham. The subjects discussed included the care of the feeble-minded, emigration, apprenticeship, health visitors under the town council, and coöperation with the clergy and ministers of religion. The general feeling of the conference was that much of the unskilled labour of to-day was due to the abolition of the apprenticeship system. The discussion on health visitors was opened by the medical officer of health who gave a most favourable report on their work. He asserted that hundreds of houses were kept in a cleaner and more wholesome condition as a result of the work of these visitors and that many hundreds of mothers were making an effort to feed their infants in a better manner and with more wholesome food. Beginning with four health visitors there are now 13 in Birmingham.

Re-afforestation in the Midlands.

Considerable progress is being made by the Midland Re-afforestation Association in its admirable endeavour to restore the natural beauty to lands devastated by mining operations. 5000 trees were planted on pit mounds near Wednesbury last year and 42 acres of pit-bank near the isolation hospital at Moxley have been handed over to the association. The Walsall branch of the association lately visited several sites where tree planting on pit mounds had taken place in the past. Reeds Wood Park, now a beautiful sylvan retreat containing thousands of large well-grown trees with open spaces from which crops of hay are taken annually, was once a desolate series of spoil banks. Horsefield Gorse Wood, now a thicket of conifers and other trees, mingled with wild roses and brambles, was planted some 25 years ago on levelled pit-banks of which not the slightest indication now remains.

Health of Birmingham and District.

The case of small-pox to which I referred in my last letter, and which was only discovered after the patient had suffered from the disease for some time, has been accountable for eight other cases and there are now 14 patients under treatment at the isolation hospital. Fortunately, the disease is of a mild type. An epidemic of measles has broken out at Wolverhampton and some hundreds of children are affected. 11 schools have been closed and the authorities

are now discussing the question of closing all the schools. The epidemic at Dudley seems to be declining, but not before it has claimed 74 deaths.

July 11th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Council of the Royal College of Surgeons of England.

AT a meeting of the Manchester and District Association of the Fellows of the Royal College of Surgeons of England held on July 8th the following propositions were passed:—

That it is desirable that Manchester be represented on the Council of the Royal College of Surgeons. That Mr. G. A. Wright be requested to stand as a candidate for the next election.

Mr. Wright consented to stand and a subcommittee was formed to further his election.

Small-pox at Todmorden.

IN THE LANCET of July 1st it was stated that a Todmorden tradesman threatened an action because his daughter had been taken to hospital as a small-pox patient when, as he contended, she had only got chicken-pox. Unfortunately for him and his family his contention was not valid, for now he himself, his wife, and another daughter have developed small-pox and have all been removed to the hospital.

The Langho Inebriate Reformatory.

Complaints have been made from time to time of the great cost of the Langho Reformatory and the small number comparatively among whom the cost is distributed. It is stated that now, however, more careful classification is being adopted, and the work of reforming the inebriates is said to be "full of hope. The heaviest task has been to maintain peace between the women, their tempers at times being quite uncontrollable and almost amounting to madness." At the annual meeting of the friends of the Fallowfield Retreat the relative cost was stated to be much below that at Langho, and nothing so outrageous in the behaviour of the women was mentioned.

A Holiday in an Isolation Hospital.

At Wigton an unusual arrangement is being made for the holidays of the workhouse children. They are to spend them at the rural district council's isolation hospital, which is situated in a wooded glen. This does not seem an ideal scheme till we are reassured by the statement that "it has not yet been used for the purpose for which it was built."

Health of the Port of Manchester.

The eighth annual report of Dr. A. M. N. Pringle, medical officer of health to the Manchester port sanitary authority, tells of more work done than in any previous year since the authority was established and of the absence of serious sickness. The actual number of cases, 159, is the highest, but "it is merely the inevitable resultant of the expansion of the trade of the port." The number of vessels steadily increases year by year and the number of seamen fairly equally with the number of vessels. "As each seaman may be considered as a potential case of sickness," it follows that the actual number of cases of sickness or injury must be on the increase. And "as the total amount of sickness increases the tendency to increase in any particular form of disease should also be in evidence. It thus arises that the danger of the importation of forms of infectious disease is steadily advancing." However, there have only been eight cases of enteric fever and one case of "supposed" scarlet fever. There were 29 accidents, including seven cases of drowning. 2631 vessels were inspected. During the month of June 224 vessels of all kinds were inspected in the port, 119 being found to have defective and insanitary conditions. Of these the large majority—109—were British and the rest were foreign.

July 12th.

BRISTOL ROYAL INFIRMARY.—The carnival which was held at the Zoological Gardens, Clifton, during the last week in June with the object of raising £15,000 to wipe off the existing debt on the Bristol Royal Infirmary has been most successful. It yielded a profit of £7500 and Sir George White, Bart., has given a similar sum, so that the infirmary is now free from debt.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool Institute of Tropical Research: Generosity of Sir Alfred Jones, K.C.M.G.

Sir Alfred L. Jones (the chairman of the Liverpool School of Tropical Medicine) entertained Lord Mountmorres and a number of gentlemen at a dinner at the Palatine Club on July 3rd to inaugurate a new movement for the encouragement of tropical research in Liverpool, under the title of "The Liverpool Institute of Tropical Research." Tropical cultivation of plants, trees, and crops, together with stock raising, come within the purview of the institute. Under animal products will be embraced scientific information regarding meat, preserved food, honey, fish, &c. The vegetable foodstuffs department will include rice, maize, millet, and other tropical cereals. The draft constitution of the institute shows that the general direction of affairs will be vested in an executive committee composed of men of distinction connected with Liverpool, its university, and its trade. In all that concerns the scientific work of the institute the director, Lord Mountmorres, will be advised by a professional board, composed of the men of science who will direct the work of the various sections into which the institute is to be divided. The departments will be seven, as follows: Statistics and geography, economic botany, economic zoology, economic chemistry, economic geology, technics, and ethnology and native languages. Sir Alfred Jones expressed the opinion that the movement would succeed like the Tropical School of Medicine. He promised to contribute £1000 a year for four years and said he was sure that further assistance would be forthcoming. It was the dawn of a great movement, one which the Germans and the Belgians had set working long ago. The commercial community now possessed in Liverpool a modern university which was willing to help in every way to build up the prosperity of the city and he was delighted to see present so many of the University professors. They had already been fortunate enough to obtain the services of Lord Mountmorres who would be appointed the director of the institute. His lordship had already drawn up a practical scheme and given a little time he had no doubt the scheme would bear fruit in a manner that few now realised. Our tropical possessions were scarcely probed into. It would be the endeavour of the new school of research to inquire in every way into the natural resources of our tropical possessions. In Lord Mountmorres they had an observer who had made himself familiar with those possessions, who had furnished reports of the greatest value, and he felt sure that with such a man at its head the institute would have a brilliant future. Lord Mountmorres, in his reply, pointed out how a want of scientific knowledge had kept back our progress in the rubber industries. Reference had been made to the importance of applying science to the everyday needs of the community. Applied science had a place in the universities and it was the duty of the universities to come forward and to demonstrate their utility. In Liverpool the prominence of a knowledge of the tropics was evident and he felt certain that the movement would have the support of the community. Liverpool should have a bureau of information. It was not right that we should be continually referring questions relating to drugs, timbers, and rubbers to the Continent, Liverpool should itself possess all it required in that direction. Professor Herdman said that he believed most thoroughly in the possibilities of the tropics. He had had a fair experience of their possibilities in his pearl fisheries expedition. The white man was wanted everywhere. Another point which struck him was the competition to which the Britisher was subjected by the German and the Frenchman. Lord Mountmorres proposed the health of the host, which was suitably responded to by Sir Alfred Jones, who said that his watchword was "Study what you have got." As an initial step the institute has just sent a gentleman to Paris to obtain for Liverpool a mass of information not locally accessible. The institute will work in many departments in coöperation with other bodies on an international basis, a free exchange of scientific information being thereby effected.

The University of Liverpool.

The city council on July 5th agreed to the recommendation of the finance committee to renew the grant of £10,000

to the University of Liverpool during the current year. The representatives of the city council on the council of the University have reported very favourably on the work carried on at that institution and are convinced that the aim of the University is "not only to serve the highest interests of the students, but to advance directly the commercial and industrial prosperity of the city; and that the University in using the best methods to obtain those results."—Professor Herdman conducted a small party of members of the Biological Society through the new buildings in Brownlow-street on July 1st, wherein the natural history department is to be housed. The primary object of the inspection of the numerous rooms was to see the accommodation provided for the Biological Society. The general arrangements of the spacious rooms, which occupy the central block between the Hartley botanical laboratory and the electro technic department, were much admired. The comprehensive museum, lecture theatre, ample laboratories, aquarium, and work places for advanced students all evoked commendation. Lord Onslow is to open the building on Nov. 4th.—The ceremony of conferring the degrees gained at the University during the past year took place at St. George's Hall on July 8th. There was a large and fashionable gathering of ladies and gentlemen and the galleries were occupied by students who showed their traditional resourcefulness in contributing to the liveliness of the proceedings. The candidates entered the hall in processional order and were followed by graduates, members of the governing and teaching bodies, distinguished guests, and civic representatives, with the addition of Sir Joseph Wilson Swan who subsequently gave an address in connexion with the opening of the new electro-technic laboratory at the University. The Earl of Derby, K.G., in his capacity as Chancellor of the University, presided, and "in virtue of the powers vested in him" conferred the degrees in due form. Following upon the ceremony at St. George's Hall, Sir Joseph Swan, accompanied by the Earl of Derby and Vice-Chancellor Dale and a numerous company, drove to the new electro-technic laboratory in Brownlow-street and having been presented with a golden key by the architects formally opened the main door. The visitors made a tour of inspection and subsequently assembled in the lecture theatre to hear a short address from Sir Joseph Swan. Professor Marchant, who is in charge of the laboratories, proposed a vote of thanks to Sir Joseph Swan and said that it was particularly fitting that Sir Joseph Swan should open a laboratory intended to train people in a knowledge of all the developments of electricity because he was the first to make the incandescent electric lamp a practical success. The new laboratories are an outcome of the endowment of a chair of electro-technics by Mr. David Jardine in 1903. Mr. Jardine's gift amounted to £10,000, and for the purposes of building the University fund advanced £12,000 whilst the Lancashire county council contributed £1000.

Mill-lane Hospital, Liscard.

Dr. J. Oldershaw, the vice-chairman of the Wallasey health committee, opened a new pavilion at the Mill-lane infectious diseases hospital on June 30th. The new pavilion has accommodation for 20 beds, bringing the total number of beds up to 64. The hospital was opened in 1887 with one pavilion containing eight beds. In 1894 a second pavilion with 12 beds was added and five years ago the area of the site of the hospital was increased to over six acres. If required further additions can be made, bringing up the total to 124 beds. Dr. Oldershaw pointed out the care that had been taken in construction in order that there might be no crevices to afford lodgment for infection-bearing material.

Accident to Dr. Joseph Henry of Rochdale.

Dr. Joseph Henry, medical officer of health of Rochdale, met with a serious accident on June 27th. Whilst driving a dog-cart in the neighbourhood of Sudden, near Rochdale, the horse took fright at some passing object and bolted. The efforts of Dr. Henry and his coachman were unavailing in stopping the animal in its headlong course. The trap collided with a lamp-post and Dr. Henry and the coachman were thrown out. Dr. Henry sustained a simple fracture of the right tibia, besides bruises on the face and other parts of the body. The coachman escaped with only a few bruises. Dr. Henry is happily progressing favourably.

H.R.H. Princess Christian and the Liverpool School of Tropical Medicine.

Her Royal Highness Princess Christian received the following members of the Liverpool School of Tropical Medicine at Schomberg House on July 1st: Sir Alfred Jones (chairman), Major Ronald Ross (professor of tropical medicine), and Professor Rubert W. Boyce (the dean of the school). The Princess, who is honorary president of the school, presented the Mary Kingsley medal, on behalf of the Tropical School, to Dr. Laveran of the Pasteur Institute, Sir Patrick Manson, and Colonel D. Bruce, R.A.M.C.

July 11th.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

Opening of a New Semi-convalescent Hospital at Cookridge.

THE opening of the new Robert Arthington Semi-convalescent Hospital at Cookridge marks an important step in the history of the General Infirmary at Leeds, the work of which it will greatly facilitate. The policy of which the opening of this hospital is the latest expression was experimentally entered upon some 19 years ago. It was found that the ordinary convalescent homes to which many patients were sent from the infirmary could not, as was to be expected, provide for those who required a considerable amount of nursing or for those who, having been operated on, required skilled dressing combined with the benefits of pure air. The authorities of the Cookridge Convalescent Home kindly placed one of their wards at the disposal of the infirmary and this was provided with a sister in charge and a staff of nurses. The results were so satisfactory that a citizen of Leeds, Mr. John North, very generously gave a sum of £5000 towards the building of the semi-convalescent hospital, known as the "Ida" Hospital and so named in memory of one of his daughters, which was built close to the Cookridge Hospital and which, during the last 17 years, has been of the utmost utility. It provides accommodation for 50 patients and is under the immediate charge of a resident medical officer, a sister in charge who acts as matron, and a staff of nurses from the infirmary. It is situated about five miles from the centre of the city, on the high ground which separates Airedale from Wharfedale. The supplementing of this by the hospital which has just been opened was rendered possible by the gift of £12,000 by the late Mr. Robert Arthington who gave the money to the infirmary authorities to build a hospital for women and children. A site was purchased adjacent to that on which the Ida Hospital stands and in this way the new hospital was able to be arranged practically as an extension of the old one, with which it is connected by a covered way. The kitchen and certain parts of the administrative department are common to both. Both hospitals are constructed on the same general plan of a central block, with two widely diverging wings, inclosing in each case a wide angle, opening in a southerly direction. There are extensive verandahs and for some years quite a number of the patients at the Ida Hospital have slept out of doors. There are also small wards, day rooms, and an isolation department in case of the occurrence of any infectious disease. The patients who are sent to these hospitals remain under the care of the honorary officer under whose care they were when in the infirmary. Hitherto the duty of visiting the hospital has devolved on the assistant staff, but provision has now been made for a more systematic and regular performance of this duty by the appointment of a special officer. The "assistant surgeon in charge of the Ida and Robert Arthington Hospitals," who must be a Fellow of the Royal College of Surgeons of England, is appointed for a period of ten years, and is during that time a member of the faculty (or honorary staff) which in Leeds carries with it a seat on the board. He visits the hospitals twice a week. As the first holder of this post the election committee has recently appointed Mr. J. F. Dobson, M.S. Lond., F.R.C.S. Eng. The following extract from the annual report will be read with interest by those who are concerned in hospital finance:—

The chief reason which has induced the board to decide upon the development of semi-convalescent hospitals has been economy. As medical and surgical science progress, a great hospital such as the Leeds Infirmary inevitably becomes more expensive, so much so that it is wasteful to allow patients in a convalescent stage to occupy the room provided in it. At the same time these patients may be too ill to be taken home and too ill to recover without constant nursing and medical and surgical attendance. The semi-convalescent hospitals are devised to meet this class and it is found that patients after reaching a certain stage of convalescence derive more benefit by being treated there than

at the infirmary, whilst the expense of their maintenance falls from 27s. to 15s. 5d. per week. It is believed that sufficient of this class will be found to fill the Robert Arthington extension and that the hospital will thus obtain an increase of its accommodation of 50 beds at less than two-thirds of the cost of a similar addition to the infirmary itself.

July 11th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Quater-Centenary Celebration of the Royal College of Surgeons of Edinburgh.

OWING to the large number of those who have accepted the invitation to the evening reception of the quater-centenary celebration of the Royal College of Surgeons of Edinburgh which will be held on July 20th, it is now intimated that the gathering will be held in the Royal Scottish Museum, Chambers-street, instead of in the Royal College of Surgeons, as originally intended, and stated on the cards of invitation.

The Dangers of Shell-fish.

Dr. A. K. Chalmers, medical officer of health of Glasgow, in a report to the health committee says that during past summers it has been necessary to refer to cases of enteric fever occurring in association with the consumption of shell-fish by excursionists to coast resorts. In contrast with these occurrences there has been little local evidence tending to incriminate the trade customs of the local shell-fish gatherers. It was recorded, for example, in connexion with the Lochgilphead cases of enteric fever two years ago, that the regular gatherers at that place rejected such shell-fish as were regarded by them as "sick," because they lay on the surface; while, on the other hand, the visitors collected and ate these without hesitation, being unacquainted with the fact that the healthy mollusc of the species then implicated was to be found below the surface of the sand. There thus arises the apparent anomaly that while visitors sickened after consuming shell-fish gathered on the spot, no cases were traceable among the consumers of those despatched to Glasgow in course of trade. Recently, together with Dr. J. C. McVail, medical officer of Dumbartonshire, and Dr. R. MacNeil Buchanan, the city bacteriologist, he visited the Gareloch, where gatherers were employed sending shell-fish to the Glasgow market. The sewage of the neighbourhood discharges on the foreshore towards the northern side of the loch, while that portion between the houses and the burn separating the parishes of Row and Roseneath is a little further distant from the sewers. The distribution of the mussel over the foreshore is irregular, the deposits lying closer at some places than others, but the gatherers were quite alive to the business risk of disease becoming associated with the consumption of their gatherings and purposely abstained from lifting mussels from that section of the shore on which sewers, or the bulk of them at least, were discharging. Herein, therefore, lies the note which may serve as one of warning to excursionists, for while the regular gatherers thus restrict their operations they were told of irregular gatherings—sometimes for bait but chiefly by visitors—of mussels from the area of obvious sewage pollution. Information in sufficient detail was not forthcoming to enable Dr. Chalmers to say what distance from a sewage pipe discharging below high-water level would in all circumstances constitute risk of infection from shell-fish gathered in the neighbourhood, but the direction of tides and local currents would obviously influence the question. In general, however, it may be recommended to the occasional visitor who has no opportunity of studying the habits of the marine fauna, that it would be well that shell-fish should only be gathered after inquiry has been made as to those habits from the local gatherers. Dr. Chalmers suggests the desirability of an inquiry into the conditions present over the whole area of shell-fish layings in the Clyde basin with a view to marking off such as come within the "danger zone" of sewage pollution. Dr. Buchanan reports that of six mussels taken at random from the neighbourhood of a sewage pipe all contained bacterial evidence of sewage contamination. Of a like number taken from a spot beyond this three were similarly affected, as were also four out of six taken from a spot still further removed but probably subject to the influence of local currents. The committee has requested Dr. Chalmers to communicate with the clerks to the local authorities of Argyllshire, Ayrshire, Renfrewshire, &c., requesting them to have boards placed on the shores warning visitors of the dangers attendant on the consumption of the class of shell-fish referred to in the report.

Infantile Mortality.

One of the most notable works carried out by the health committee of Glasgow is that associated with the question of infantile mortality. It has recommended that the medical officer of health should be empowered to give a fee of 1s. to the first person who gives him notification of a birth in certain districts of the city. At present births must be registered within three weeks, and as a rule it is done at the end rather than at the beginning of this period. The first three weeks of a child's life are probably the most important. It is intended that at the earliest possible moment after notification a visit should be made by one of the female inspectors who could be of great service in giving advice. It is a startling fact that while during the past 30 years the death-rate in the city has been greatly reduced the infantile mortality is as high as, if not higher than, it has ever been.

Insanitary Houses in Peterhead.

At a recent meeting of the public health committee of the Peterhead town council a letter was submitted from the secretary to the Local Government Board inquiring what steps were being taken in connexion with the remarks of the medical officer of health and sanitary inspector in their respective reports for 1904 with regard to the houses condemned as unfit for human habitation, the insanitary condition of a number of the houses lying between the Seagate, Brook-lane, Longate, and Broad-street, and the disposal of house refuse, particularly in the Ronheads district. The several subjects having been fully considered it was resolved to remit to the sanitary inspector again to examine the area referred to and to report in detail, with a view to the committee taking such action as it might deem advisable, in accordance with the powers contained in Section 154 of the Burgh Police (Scotland) Act, 1892, and in the meantime to put in force the powers contained in the Police and Public Health Acts against all persons committing nuisances of the description indicated; and, further, the town clerk was instructed to issue handbills to be posted throughout the burgh calling the attention of the public to the matter and to bring the subject before the inspector of police.

Epidemic of Measles at Fort George.

A situation of gravity in military circles has been created by the outbreak of a serious epidemic of measles among the soldiers stationed at Fort George. At the present moment the barracks and military camping ground there are occupied by a large number of men, there being 600 of the 3rd Battalion Cameron Highlanders, 700 of the Black Watch (1st Battalion Royal Highlanders), and about 100 Seaforth Highlanders. The outbreak of measles began about the middle of June and a military officer who visited the place at the end of June states that when he was there there were four or five large marquees filled with men who were suffering from the disease. The whole place—barracks and camping ground—has been isolated and the men have been placed in quarantine, no one being permitted to enter or to leave the limits of the area. The epidemic first broke out among the Cameron Highlanders, who were camped near the fort, but the disease has spread to the garrison companies.

Contagious Diseases in Aberdeenshire.

At a meeting of the executive committee of the Aberdeen county council on July 7th, Mr. M. Gordon of Newton, convener, in the chair—it was reported that since May 1st there had been six outbreaks of parasitic mange and no fewer than 29 outbreaks of anthrax, the latter embracing practically all parts of the county. In view of the danger of cutting up animals which die from anthrax and thus allowing the tainted blood to escape and to propagate the disease, Mr. Smythe of Echt suggested the desirability of asking the Board of Agriculture for powers to compel owners of stock, in the event of sudden death, to inform the inspector for the local authority rather than to call in the services of a private veterinary surgeon. It was ultimately decided, however, that the county clerk should prepare and circulate a leaflet drawing the attention of stock owners to the fact that in the event of sudden or suspicious death among their stock they were entitled to have the gratis advice of the inspector of the local authority on their notifying the latter

of the occurrence. It was agreed also to recommend the county council to ask the Board of Agriculture for powers to amend the Aberdeenshire (Parasitic Mange) Order of 1903 to the following effect:—

(1) That all affected animals be detained at the place at which the outbreak occurred until they are cured, with a provision for change of the place of detention where necessary; and (2) that the movement of other animals out of premises where the disease exists shall only be allowed subject to the animals being washed over with a proper disinfectant before movement.

July 11th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Belfast Workhouse Children.

AT a meeting of the Belfast board of guardians held on July 4th a motion was carried to the effect that the members were in favour of the removal of the workhouse children from the workhouse grounds. Unless this were done, so placing the school buildings at the disposal of the guardians, a new children's infirmary would have to be provided. What is contemplated is the establishment of schools, as is the custom in England and notably in London, for the training of workhouse children.

The Belfast County Court-house.

The summer assizes open at the court-house, Belfast, this week and the high sheriff of Belfast (Dr. Henry O'Neill) finds that, from a sanitary point of view, the building is in an "infinitely worse" condition than it was in March last when the grand jury, common juries, and the Bar passed special resolutions drawing the attention of the judges to the matter. The work, long delayed, has been entered upon but it should have been taken in hand long ago and completed without a rush in time for the assizes. The Antrim county council has decided to expend a sum of £13,650 to provide for increased accommodation in the court-house, as agreed upon by county Antrim and the city of Belfast, both of which use the building for holding their respective assizes.

Lightning Catastrophe near Lurgan.

On the evening of July 9th the north of Ireland was visited by a severe thunderstorm and a flash of lightning struck the pole of a tent belonging to the Irish Christian Workers' Union at Annaghanoon, near Donacloney, in the neighbourhood of Lurgan. As a result two men in the audience were killed and some 35 persons were injured. Ten of these received burns, some of which resembled the marks which would be inflicted by an ordinary fire spark, while others were larger but none of very great extent, and beyond the shock occasioned to the nervous system no serious injury has been sustained by any of these patients. One of the female patients who for a time was despaired of is recovering and it is remarkable that in her case, though she was so severely prostrated, no marks of burns appeared on the body. At the time of the occurrence the audience in the tent were standing and singing a hymn.

July 10th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

A Possible Case of Paget's Disease (Ostitis Deformans) cured by Antisyphilitic Treatment.

AT a recent meeting of the Hospitals Medical Society M. Jacquet showed a patient who gave a history of having had 30 (*sic*) chancres of the penis in the course of one year. He then, following on an injury, developed a deformity of the tibia which exhibited the "sabre-blade" shape. The progress of this disease was arrested by mercurial treatment. M. Jacquet asked his colleagues whether this was really a case of osteitis deformans or whether it was simply a case of syphilis, the diagnosis being based on the history and the result of the treatment. For his own part he inclined to the latter opinion.

Two Cases of Addison's Disease Successfully Treated by Adrenalin.

At the meeting of the Therapeutical Society held on June 28th M. C. Gulbenk stated that cases of Addison's disease in which much improvement had been brought about by the administration of adrenalin were not uncommon in medical literature. He had himself treated with adrenalin patients under his care who were suffering from this disease. Two of these patients were practically cured, the asthenia disappeared, as did the pains and the vomiting, while the general health markedly improved. M. Gulbenk then proceeded to endeavour to account for the constant failures mentioned by many observers. Some pathologists regard Addison's disease as a lesion of the great sympathetic nerve, others as a destruction or functional arrest of the suprarenal bodies. It is therefore probable that Addison's disease is merely a group of symptoms produced by these two lesions coincidently. A sort of vicious circle takes place; the destruction of the gland brings about degeneration of the nerve, and a nerve lesion brings about degeneration of the gland, so that the clinical features of Addison's disease are due to both these factors together. Such is the opinion of Lancereaux. If the glandular lesion is the predominant factor adrenalin acts well; if, on the contrary, the nerve lesion is predominant adrenalin is of little use. On the whole, the administration of adrenalin is a valuable aid in the treatment of Addison's disease, especially in those cases in which the suprarenal body itself cannot be administered, although this last substance when given raw has a much more powerful therapeutic effect than has adrenalin.

The International Congress on Infant Feeding.

The first session of the Congrès International des Gouttes de Lait will be held in Paris on Oct. 20th and 21st. The presidents are Dr. Variot, physician to the Children's Hospital, and Dr. Dufour, the founder of the "*goutte de lait.*" Among the committee are Dr. Richardière and Dr. Boissard, physicians to the Paris hospitals, and sundry foreign medical men who have founded "*gouttes de lait*" in Spain, Belgium, Russia, and Switzerland. The secretaries are Dr. Roger, physician to the hospitals, Dr. Péan, and Dr. Grasset. The object of the association is well known—namely, to diminish the mortality among non-breast-fed children by supplying good and pure milk and by instructing ignorant mothers. Anyone wishing to take part in the congress should send his name, together with 20 francs, to Dr. Roger, 39, Rue de Berry, Paris, before Oct. 15th.

Some Figures of Diabetes.

M. Navarre recently laid before the Lyons Medical Society some interesting figures concerning the frequency of diabetes among railway engine-drivers and firemen. The figures gave the following results per 1000. Of engine-drivers and firemen 12·65 were diabetic; of guards and brakesmen, 13·10; and of other railway servants, 1·7. M. Navarre attributes the diabetes which is so constantly found among travelling servants to the continual shaking which they undergo. M. Lepine considered that in addition to the purely physical shocks, mental anxiety plays a large part in the production of the disease. He cited the case of an engine-driver who developed diabetes within 24 hours of the train which he was driving having just avoided a collision.

Pneumotomy for Dilatation of the Bronchi.

At the meeting of the Surgical Society held on June 28th M. Tuffier read, on behalf of M. Antipas, the report of a case in which the latter had performed pneumotomy. The patient was a child, aged four years, who for three months had suffered from pulmonary infection with signs of septic infection and a cavity at the base of the lung. On incising the lung, the tissue of which was much thickened, a small cavity was found which was full of pus. This was drained and the symptoms of septicæmia were markedly less on the following day. Broncho-pneumonia, however, supervened and the patient died. Pneumotomy only seems to have made any progress since the invention of apparatus to obviate the retraction of the lung which occurs when the pleura is incised. Such apparatus has been invented by both Saurbruch and Brower. The results of pneumotomy for bronchiectasis are not very encouraging, but in recent infections of the lung it is useful. Thoracoplasty is perhaps better and is certainly a less severe operation. M. Antipas related the case of a youth, aged 17 years, in whom he resected three ribs on the side which tended to contract and in whom all febrile symptoms disappeared after the operation.

Venom in the Eggs of the Viper.

M. Phisalix has already shown that when the toad awakes from its winter sleep the eggs in the ovary absorb a certain quantity of the poison which is circulating in the blood and this poison plays an important part in the phenomena of heredity. At a recent meeting of the Academy of Sciences he read a paper showing that the same process takes place in the viper. The yellowish "*bouillie*" obtained from the ovules of the viper by crushing them and removing the limiting membrane is very toxic and kills animals into which it is inoculated with all the symptoms of viperine intoxication. It has all the properties of the actual venom, it will not dialyse, and is destroyed on exposure to a high temperature. The presence in eggs of poisons so characteristic as those of the toad and the viper gives reason for thinking that together with the mechanical phenomena of development there are also chemical phenomena the rôle of which must be essential in the formation of the organs and for the mechanism of heredity.

Sodium Citrate in the Therapeutics of Infancy.

At the meeting of the Society of Pædiatrics held on June 20th M. Variot referred to the extremely satisfactory results which he had obtained in infantile gastro-enteritis by the use of sodium citrate.[1] While not denying the eupeptic action which has been ascribed to this drug he considers that its chief value is its power of acting as an anti-emetic in the digestive troubles of bottle-fed infants or in those who, although suckled, vomit for no definite reason.

July 10th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

A Tropical July.

WRITING on June 26th in the midst of a tremendous storm, during which the flashes of lightning and the thunder peals were so frequent as well-nigh to be past counting, I shared the consolatory anticipation of many a Florentine that this grand atmospheric performance was but the prelude to a period of cool steady weather, particularly as the finale of the said performance was what Italians call a "*nubifragio*"—the bursting of a waterspout, which flooded the streets, engorged the mountain streams to torrents, and roused Father Arno himself out of bed to run a race along his banks out of all keeping with his usually staid, not to say retiring, behaviour. We little knew what was in store for us! In a few hours the heat became all too perceptible, even aggressive, and before the week was half through not Florence only but all Italy was lying supine under a temperature to which the directors of the meteorological observatories throughout the kingdom have with difficulty recalled a parallel. Returns from these observatories continued to tell a similar tale. In Rome on July 4th the thermometer registered 40·1° C., whereas the highest figure for the last 30 years was 37·6° C. According to Professor Palazzo, of the Roman Meteorological Observatory, there is no exceptional cause to account for the phenomenon. "It is," he says, "the barometrical situation that determines great temperatures. All over Europe the barometrical markings have been abnormally high—exceeding 760. In Italy the differences of pressure are small; hence we have either very faint air-currents or perfect calm, and it is precisely the absence of wind and the serenity of the sky to which we owe our high temperature. The sun's rays are continuously scorching the earth; in the clear atmosphere there is not a cloud to intercept them; the air is absolutely pulseless. Even through the night, cloudless though it be, the sky is not very transparent and therefore the nocturnal cooling-down is hardly perceptible. No extraordinary agency lies behind the present high temperature in Italy; it is simply a concurrence of causes all tending to that result." The Padre Rodrigues of the Specola Vaticana and the Padre Guido Alfani of the Osservatorio Ximeniano in Florence have given the same opinion, all of them looking to barometric depression from the Atlantic to modify the situation. Meanwhile the number of cases of insolation reported from town and country is appalling, till the population hardly dares to venture abroad. The noonday stillness of the great industrial centres is something solemn, even sepulchral, and if, by necessity, an individual has to pass from one point of the city to another he may be seen (as described by Manzoni) hugging the shady side like a figure in *basso-rilievo* or, like the figure of the man in the opening of Dickens's "Little Dorritt," making a plunge into the blazing piazza and striking out for the nearest landing place. Serous apoplexy occurring in the night when the patient is in bed is frequently reported, chiefly from the great cities where American bars for the retail of iced beverages have multiplied enormously of late years and where the engorgement of the circulation with liquids induces the "condition precedent" to the apoplectic stroke. As I write reports from the provinces notify a slight diminution of the heat, though the returns of insolation stand at about the same figure. We have yet to receive full and adequately checked statistics of a phenomenon which will make the year now passing an *annus mirabilis* in meteorology.

July 8th.

[1] THE LANCET, Nov. 26th, 1904, p. 1532.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Decline of the Plague Mortality.

THE mortality from plague throughout India shows a rapid decline. For the week ending June 10th only 7486 deaths were reported as compared with 15,317 for the previous seven days. The Punjab had 5086 deaths, as against 9460; the United Provinces 955, as against 1785; Bengal 299, as against 661; Rajputana 349, as against 2449 (this extraordinary drop suggests some error in the returns); Bombay districts 345, as against 361; Burma 60, as against 85; Kashmir 56, as against 63; Bombay city 227, as against 346; and Calcutta 52, as against 84. The only place at the present moment where the disease seems to be spreading is Burma, where outlying districts from Rangoon have recently been attacked. Bassein has been declared an infected port. In the report for 1904 recently issued concerning the jails of the Punjab it is recorded that only one death from plague occurred, although the disease was raging in the province for three parts of the year.

The Prevalence of Kala-azar in Assam.

In a report recently published concerning the work of the dispensaries in Assam it is stated that the number of cases of kala-azar fell from 2534 in 1902 to 257 in 1904, but it is admitted that the diagnosis of the hospital assistants cannot be depended upon. Concerning this disease statistics are almost valueless, although it is probable that the mortality has not been so great in recent years as formerly.

Excessive Summer Heat.

During the past fortnight the summer heat in many parts of India has been excessive. In the Gangetic plain temperatures of from 100° to 114° F. have been frequent—the latter figure having been recorded in Allahabad and a temperature of 106° was registered in Calcutta. In the latter city the heat has been exceptionally oppressive and many deaths have been attributed to it. Large numbers of horses have been lost as well as draught cattle.

Cremation for the Parsi Dead.

There seems to be a move amongst a certain section of the Parsi community in Bombay to adopt the western method of cremation of the dead in place of the loathsome practice of exposing the dead to be devoured by vultures. The Hindu method of cremation by open wood fires is not supported. It is proposed to establish a Bombay cremation society on the lines of the Cremation Society of Bengal which was established in Calcutta in 1902. It is earnestly to be wished that the innovation may be taken up by the Parsi community, which, while so enlightened and far-seeing in some respects, is backward and exclusive in others.

Vital Statistics of Bengal.

A Government resolution on the report of the Sanitary Commissioner for Bengal for 1904 has just been issued. The birth-rate has been enormous—viz., 42·6 per 1000 for the whole province—and in Chota Nagpur division it reached nearly 50 per 1000. In the Hazaribagh districts the birth-rate exceeded 56 per 1000. On the other hand, the death-rate was high also—viz., 32·4 per 1000 for the whole province and

over 35 per 1000 in many places. In Chota Nagpur division the death-rate was only 22·9 per 1000. The registration of births is hardly likely to be over estimated, but the registration of deaths is very probably under estimated. The infant mortality is put down at 187 per 1000 births but varies in different places, probably as much from defective registration as from the varying degrees of healthiness in districts. The heading of fever, under which so many deaths are recorded, covers a large number of diseases as well as of deaths of infants born feeble. Too much reliance should not be placed on Indian mortality statistics, especially with regard to the frequency of certain diseases, as the causes of death are in the vast majority of cases merely those given by the ignorant relatives. By Captain Rogers's researches in Dinajpur it was shown that out of 1000 deaths attributed to fever one-fifth were probably due to pneumonia, one-tenth to diarrhœa, one-ninth to pulmonary tuberculosis, one-sixteenth to dysentery, and one-fifth to other causes, leaving less than one-third as probably due to malaria. The Lieutenant-Governor has recently sanctioned a project for draining an area of 290 square miles and other schemes are in preparation with a view to lessen the prevalence of malaria. It is interesting to note that several of the municipalities of Bengal are becoming alive to the necessity of improved sanitation. There are 14 drainage schemes being prepared and others are under consideration. A great deal more might be done if progress in this direction was not left to municipal bodies but was taken in hand by a skilled sanitary board. At present such a body exists only to give advice—it has no power to command. Sanitary progress under such conditions must necessarily be slow.

June 23rd.

Obituary.

HERMANN NOTHNAGEL, M.D.,

PROFESSOR OF SPECIAL PATHOLOGY AND CLINICAL MEDICINE IN THE UNIVERSITY OF VIENNA.

OUR Vienna correspondent has sent us the following brief appreciation of the world-famous physician, Professor Hermann Nothnagel. "Austrian medical science in particular, and that of the whole civilised world in general, have suffered a severe loss by the death of Professor Hermann Nothnagel which occurred on July 6th from an attack of angina pectoris. He was in his sixty fifth year, having been born in Prussia in 1841. He was educated at Berlin and Königsberg, among his teachers being Traube, Virchow, and Leyden. In 1866 he settled in Königsberg as *privat-docent* and in 1870 he served as an army surgeon during the war, being medical officer in charge of the hospital at Châlons-sur-Marne. He then held various appointments at the Universities of Breslau, Freiburg, and Jena, and in the year 1882 came the call to Vienna. Here he served the University as professor of special pathology, therapeutics, and clinical medicine, besides being director of the Medical Clinic. In his non-official capacity he built up a large practice, patients coming to him from all parts of the world, among them being various kings and two emperors. His contributions to medical literature were numerous and famous, amongst the best known being 'The Localisation of Diseases of the Brain' and 'Diseases of the Nervous System following Typhoid Fever.' Besides these he wrote a treatise on the Rhythmic Action of the Heart, a Text-book of Epilepsy, an exhaustive work upon Materia Medica, and edited the great work upon General Pathology and Therapeutics which was written by various authors under Nothnagel's personal supervision. His own contribution was the section on Diseases of the Intestines.

Nothnagel was the last of the great men who made the Vienna School of Medicine so famous, his chief predecessors being Hyrtl, Rokitansky, Billroth, and Skoda. For some years before his death he was aware that he was suffering from arterio-sclerosis and the last letter he ever wrote, composed only some two hours before his death, was addressed to his assistant at the clinic and contained exact notes of the course of his illness, of the rhythm and regularity of the pulse, and of his temperature. From these notes it is evident that he was fully conscious of the nearness of his end. As a teacher he was very successful and highly appreciated by the students. He was not only eloquent but his lectures were eminently practical, teaching his hearers not only to see but to observe and to draw conclusions from their observations.

"His body was buried on July 9th, an enormous crowd attending the rites. All the highest dignitaries of Vienna, representatives of the Government, of the University, of the medical societies and the colleges, took part and his remains were laid to rest amidst universal expressions of regret."

ALFRED BOWYER BARTON, M.D. ST. AND., F.R.C.S. ENG.

BY the death of Dr. Alfred Bowyer Barton, which occurred on July 4th at Brechin-place, London, S.W., in his 80th year, the medical profession loses one of its oldest members and one whose career led him into different paths from those usually pursued by the ordinary practitioner. He was born at Bungay in 1825 and in 1844 entered University College, London, as a student, among his friends and contemporaries being the late Sir Richard Quain, the late Mr. Cadge of Norwich, and the late Dr. James Wakley. In 1847 he entered the West India Mail Steamship Service and worked through the yellow fever epidemic in the West Indies of 1848. He next entered the Peninsular and Oriental Company's service as medical officer and worked in the East till 1855, when he went to the Crimea, where he was mainly employed in moving the sick and wounded from Balaclava to Scutari. After the close of the war he went to India during the Mutiny and was wrecked together with Havelock who was then on his way to the front. Dr. Barton's next scene of service was the China war of 1860, after which he settled at Shanghai. In 1861, together with Captain Blakiston and Colonel Sarel, he explored the Yangtse-Kiang, then an almost unknown river above Hankow. The party reached Pingshan on the Tibet border but were forced to return by the rebels. For their work each of them received the gold medal of the Royal Geographical Society. Dr. Barton then returned to England and took the M.D. degree of the University of St. Andrews and the Fellowship of the Royal College of Surgeons of England (by examination) and retired from active practice. Dr. Barton was a singularly powerful man, both physically and mentally. Until within a week before his death he was quite hale and vigorous. He leaves a widow, one daughter, and three sons.

GEORGE FREDERICK WALES, M.D. ABERD., F.R.C.S. EDIN.

TO the profound regret of all who knew him, Dr. Wales, who previously to his retirement had a very large practice in the north of Ireland, died on June 27th. He was the son of John Wales, the descendant of an Essex family which settled in Ireland in the eighteenth century, and he received his early education at the Royal School, Dungannon. He studied medicine at Aberdeen, Edinburgh, and Belfast, and graduated Bachelor of Medicine of the University of Aberdeen in 1857. Ten years later he took the degree of Doctor of Medicine of that University, and in 1877 obtained the Fellowship of the Royal College of Surgeons of Edinburgh. At one time he was president of the Ulster Medical Society and was the author of several monographs on medical subjects. The early part of his medical career was marked by an incident which at once stamped him as a man of unflinching courage and tact. The steamship *Philadelphia* of the Inman line, of which he was medical officer, was on her maiden voyage wrecked off Cape Race and the coolness and address with which he dealt with the 600 panic-stricken passengers aboard were such as to earn for him the special thanks of the company for his services on that occasion. As resident surgeon at Downpatrick Infirmary he did some admirable work at that institution and as a member of the Belfast town council he was a prominent advocate of sanitary reform. At his instigation some valuable practical work was carried out. He was one of the original shareholders in the White Star Line and was closely associated with the founders of the company. Dr. Wales in 1859 married Miss Charlotte Greer of Dungannon. Three of his

sons are now medical men and one is a clergyman of the Church of England.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ELECTION OF PRESIDENT.

Mr. John Tweedy was re-elected on Thursday afternoon last, July 13th, President of the Royal College of Surgeons of England, Mr. H. T. Butlin and Mr. Edmund Owen being elected Vice-Presidents.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At the primary examination held recently the following candidates passed in the subjects indicated :—

PART I.

Biology.—V. J. Bourke, London Hospital; and R. S. Minchin, St. Thomas's Hospital.

Chemistry.—H. S. Brown, University College, Nottingham; and R. J. W. McKane, Leeds.

Materia Medica and Pharmacy.—W. E. Dimond, Liverpool; L. R. Nezet, Edinburgh; P. D. Pickles, Leeds; and C. J. Wolfe, Edinburgh.

PART II.

Anatomy.—L. G. H. Furber, St. Bartholomew's Hospital; W. J. Gibson, London Hospital; T. Huddleston, Birmingham; C. J. M. Lawrence, Manchester; E. A. Mordaunt, Royal Free Hospital; G. F. Page, St. Bartholomew's Hospital; A. Portman, Leeds; and P. A. Sullivan, Birmingham.

Physiology.—L. G. H. Furber, St. Bartholomew's Hospital; T. Huddleston, Birmingham; C. J. M. Lawrence, Manchester; P. J. Lush, London Hospital; E. A. Mordaunt, Royal Free Hospital; G. F. Page, St. Bartholomew's Hospital; and P. A. Sullivan, Birmingham.

UNIVERSITY OF BIRMINGHAM.—The following is a list of the successful candidates in the Faculty of Medicine :—

I. Degrees of Bachelor of Medicine and Bachelor of Surgery.—(*a*) Official: Frank Marsh. (*b*) Under Ordinary Regulations.—Edward Lancelot Bunting, Leonard Leigh Hadley, William Claude Horton, William Cuthbert Houghton, Henry Percy Pickerill, Thomas Holmes Ravenhill, Norman John Lancelot Rollason, and Frederick Wilkinson (scholarship).

II. Fourth Examination for the Degrees of M.B., Ch.B.—Class II.: Herbert Charles Horace Brassey (scholarship), Lionel Chattock Hayes, Arthur Cecil Hincks, Claude Johnson, and Walter Rowland Southall Roberts.

III. Third Examination for the Degrees of M.B., Ch.B.—Class II.: Edward James Boome, Henry Neville Crowe, James Fenton (scholarship), Eric Thomas Gaunt, John Kennedy Gaunt, Philip James Mason, Nevill Coghill Penrose, Arthur John Smith, Rupert Wesley Thompson, and Francis Brett Young.

IV. Second Examination for the Degrees of M.B., Ch.B.—Class II.: John Adams, Charlotte Bailey, Mary Clarke (scholarship), George Henry Chareese Mold, John Lichtenstein Ritchie, Herbert Henry Sampson, and Edward Vernon Whitby.

V. First Examination for the Degrees of M.B., Ch.B.—Class I.: Cranston Walker. Class II.: James Henry Bampton, Walter Charles Blackham, Norman Alexander Boswell, Charles William Hayward, Humphrey Francis Humphreys, Violet Maud McCready, Arthur Harry Newton, Kenneth Douglas Wilkinson, and Harry Wilks.

VI. Degree of Bachelor of Dental Surgery.—Reginald Hudson Astbury.

VII. Degree of Bachelor of Science in Public Health.—(*a*) Official: Robert Arthur Lyster. (*b*) Under Ordinary Regulations.: Sidney Herbert Hawley and William Steam.

TRINITY COLLEGE, DUBLIN.—At examinations held in Trinity term the following candidates were successful :—

FINAL EXAMINATION.

Section B.—Francis R. Coppinger, John D. Sands, Thomas H. Peyton, Richard A. Connell, John C. P. Beatty, Edward Gibbon, Gustav W. Thompson, Basil G. Brooke, Robert B. Jackson, Samuel G. S. Haughton, Thomas J. Cobbe, William I. Thompson, Henry D. Drennan, Alfred C. Elliott, Percy B. Egan, Ernest C. Phelan, Herbert J. Wright, Theodore C. Somerville, Dudley F. Torrens, Malcolm K. Acheson, Daniel M. Corbett, Thomas L. de Courcey, and Herbert R. R. Fowler.

PREVIOUS MEDICAL EXAMINATION.

Anatomy and Institutes of Medicine.—William S. Thacker, Johannes C. Pretorius, Wilfred J. Dunn, Frederick Stevenson, David J. Miller, Allman J. Powell, Charles H. O'Rorke, Edmond H. Sheehan, James C. C. Hogan, Henry de C. Dillon, Thomas P. Dowley, Denis J. Stokes, John A. L. Hahn, Albert V. J. Richardson, James R. Yourell, William Knapp, James D. K. Roche, Ernest N. Ryan, and William H. Sutcliffe.

Physics and Chemistry.—Thomas A. Hughes, Arnold K. Henry, Albert Stals, John D. Kernan, Perceval G. Leeman, William S. S. Boxwell, Charles G. S. Baronnfeather, Peter H. Lemass, James Alston, Louis Trichard, William R. Watson, Charles H. Denham, Hubert G. Holdbrook, Robert R. T. Tatlow, Adams A. M'Connell, John C. Baker, Ernest Jameson, Frank Smartt, Alexander S. M. Winder, Gervase Scroope, and Alfred H. Smith.

Botany and Zoology.—Arnold K. Henry, David L. M'Cullough, Beatrice M. Hamilton, Thomas A. Hughes, Cecil P. Smyly, Perceval G. Leeman, William P. H. Smiley, George Elliot, James H. Crane, William R. Watson, Edward P. Allman-Smith, Hilgard Müller, Adams A. M'Connell, Marius A. Diémont, John Gardiner, Henry H. Ormsby, Ruphon M. Maxwell, Eric J. Powell, John D. Kernan, Victor G. Best, and William A. Taylor.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. T. Bergell has been recognised as *privat-docent* of Internal Medicine.—*Erlangen:* Dr. Lüthje of Tübingen has been appointed Extraordinary Professor of Preparatory Medicine and of the History of Medicine.—*Florence:* Dr. D. Crisafi has been recognised as *privat-docent* of Children's Diseases.—*Freiburg:* Dr. Emil Kuster has been recognised as *privat-docent* of Hygiene and Bacteriology.—*Königsberg:* Dr. T. Cohn has been recognised as *privat-docent* of Internal Medicine and Dr. R. Scheller as *privat-docent* of Hygiene.—*Odessa:* Dr. Golovin has been appointed to the chair of Ophthalmology.

A NEW WORKHOUSE INFIRMARY FOR PLYMOUTH.—At the meeting of the Plymouth board of guardians held on July 7th it was decided to ask the Local Government Board to allow the guardians to proceed with the erection of the first section of a new infirmary which will cost about £10,000 and will provide accommodation for nearly 100 patients.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The following prizes were awarded for the summer session, 1905 :—Barker anatomical prize (£26 5*s.*), T. A. Burk; special prize (£21), J. B. Kelly. Carmichael scholarship (£15), R. M. Bronté. Gold and silver medals in operative surgery: gold, J. Prendiville; silver, R. Bury and L. Lucas (equal). Stoney memorial gold medal in anatomy, T. Sheehy. Practical histology: G. C. Sneyd, first prize (£2) and medal; and E. Harrison, second prize (£1) and certificate. Practical chemistry: Miss A. F. Nash, first prize (£2) and medal; and T. A. Peel, second prize (£1) and certificate. Public health and forensic medicine: C. J. B. Dunlop, first prize (£2) and medal; and W. E. M. Hitchins, second prize (£1) and certificate. Materia medica: C. J. B. Dunlop, first prize (£2) and medal; and V. J. Clifford, second prize (£1) and certificate. Biology: E. A. Gregg, first prize (£2) and medal; and E. Harrison, second prize (£1) and certificate. The next preliminary examination is fixed for Tuesday, Sept. 26th. The School of Surgery will resume work on Monday, Oct. 2nd.—Mr. Michael Ulick O'Sullivan, L.R.C.S. Edin., &c., having passed the necessary examination, has been admitted a Fellow of the College.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.—Mr. H. T. Butlin distributed the prizes to the successful students at the London (Royal Free Hospital) School of Medicine for Women on June 29th. Afterwards Mr. Butlin delivered a short address to the students in which he remarked that not long ago it had been predicted that women had neither the courage nor the strength to enable them to pass through the medical curriculum but it was now, of course, well known that women were quite able to do this. It was also foretold that women would be unable to pass the necessary examinations but now everyone knew that they not only passed examinations but took the highest honours attainable. A few months ago the success of the women students in the chemistry examination of the University of London was absolutely exceptional. It had also been prophesied that if women did pass the necessary qualifying examination for practising medicine they would not have the nerve to carry on practice but that had been proved to be false by the fact that so many medical women were now carrying on extensive practices. On looking into the figures of the University of London there was found a slight and steady increase of the number of women in the medical faculty. Out of 16 women candidates who presented themselves for the degree of Doctor of Science 14 succeeded and such a high percentage

was a very extraordinary occurrence. Incidentally Mr. Butlin observed that there was not one single Doctor of Music; in fact, only 12 women had presented themselves for examination for the degree of Bachelor of Music and of those 12 only three had taken that honour.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Select Committee on the Registration of Nurses.

THE Select Committee of the House of Commons which has been hearing evidence for and against the registration of nurses since last year has now commenced the consideration of its report.

A Fortunate Bill.

At this late period of the session it is next to impossible to make progress with a private Member's Bill, for the reasons that all the time is at the disposal of the Government and that such a Bill can only proceed by consent after midnight. The Bill which General LAURIE has introduced year after year to amend the Medical Act of 1886 has at the last moment found itself in the fortunate position of being regarded with a kindly eye in all quarters and the result is that it has passed its second reading and committee stages in the House of Commons this week without a word of comment or discussion. As there is now every prospect that the Bill will become law this session the memorandum printed with the Bill may be quoted:—"In order to facilitate the admission of colonially trained and registered medical men to practise in Great Britain and hold appointments in the imperial service, the Act of 1886 provided for reciprocity between the mother country and such of the self-governing colonies as might comply with certain conditions, but that Act expressly stipulates that when any colony had a provincial and a federal organisation such reciprocal arrangements should be entered into with the federal government and not the provincial. In the case of Canada the British North America Act of 1867, enacted by the Imperial Parliament, expressly provides that education shall be entirely under the control of the provincial and not the federal governments, so that it is impossible to bring the Act of 1886 into force with Canada. It is impracticable to amend the British North America Act of 1867 and to transfer the control of education to the federal authorities, and therefore it is the object of this Bill to amend the Medical Act of 1886, without in any way interfering with the principle, and to enable reciprocal arrangements to be entered into either with the federal or provincial governments." General LAURIE has the support of Sir WALTER FOSTER, Sir JOHN BATTY TUKE, Mr. ROTHSCHILD, Sir HOWARD VINCENT, Mr. MIDDLEMORE, and Sir MANCHERJEE BHOWNAGOREE.

The Education of Afflicted Children in Ireland.

A new Government Bill has been introduced to make better provision for the elementary education of afflicted children in Ireland.

Bills Abandoned.

Many Bills promoted by private Members have been dropped. Amongst those sacrificed are the following: Compulsory Vaccination (Mr. BROADHURST); Juvenile Smoking (Dr. MACNAMARA); London Hospitals, Exemption from Rates (Mr. HAYES FISHER); Lunacy Acts Amendment, London (Sir JOHN BATTY TUKE); Milk Depôts, London (Mr. LOUGH); Nurses and Private Nursing Homes Registration (Mr. CLAUDE HAY); Nurses Registration (Mr. MUNRO-FERGUSON); Pharmacy (Mr. LOUGH); Public Health (Dr. C. F. HUTCHINSON); Sale of Whisky (Sir HERBERT MAXWELL); and Vaccination (Mr. STANHOPE).

HOUSE OF COMMONS.

WEDNESDAY, JULY 5TH.

Plague in Madras.

Sir WALTER FOSTER asked the Secretary of State for India whether there had recently been outbreaks of plague in Madras which had been traced to intending emigrants housed in the emigrant depôts, and, if so, whether any steps had been taken to remove the emigrant depôts to some suitable position outside the city in order to protect the residents in Madras.—Mr. BRODRICK answered: Two or three cases of plague occurred in villages near the emigration depôts but I am not aware that any case has been traced to the depôts. The Madras Government may be relied on to take all needful precautions. The latest returns of plague show that during the week ending June 10th there was only one fatal case of plague in Madras city.

Measles in Belfast.

Mr. JOSEPH DEVLIN asked the Chief Secretary for Ireland whether his attention had been called to the fact that on June 22nd, 1905, a woman appeared in the Belfast Summons Court carrying a child seriously ill with measles, in consequence of which her removal from the court was ordered; whether the Notification of Diseases Act was in force in Belfast, and, if so, who was responsible for the case referred to not being reported to the proper authorities; and whether any inquiry would be ordered in the matter.—Mr. LONG replied: The incident referred to has not been reported to the Local Government Board. The Infectious Diseases (Notification) Act, 1889, is in force in Belfast but the definition of an infectious disease does not include measles. The local sanitary authority is empowered by Section 7 to extend the definition so as to include measles or any other infectious disease but it has not availed itself of this power in regard to measles.

Horses for Food.

Mr. CREMER asked the Under Secretary of State for Foreign Affairs whether he was now in a position to state the result of the inquiries which, in August last year and in this year, he promised should be made concerning the number of old and slaughtered horses or horses unfit for work that were periodically exported from this country to Belgium, Holland, and Germany; whether he could say for what purpose their carcasses were used; and whether their flesh was made into condiments of various kinds, returned to this country, and sold as articles of food.—Earl PERCY replied: In the Netherlands horses imported for the purposes of slaughter must be slaughtered in public slaughterhouses at Amsterdam, Rotterdam, de Leyde, or Nelmeguen. It is guaranteed that only sound meat is offered for public consumption. As regards Belgium, large numbers of horses, chiefly those which have been used in coal mines, are imported from Grimsby, Goole, Hull, and other ports on the east coast of England to Antwerp. When intended for human consumption they must be slaughtered at the public slaughterhouse and sold by butchers who only deal in horseflesh. Horseflesh does not appear to be made into meat extract in Belgium, but sausages for local consumption are manufactured. No horseflesh, except a few living animals, is exported to the United Kingdom. As to Germany, no export of horseflesh to the United Kingdom takes place from Hamburg, nor, it is believed, from other German ports, such flesh having no sale there and being easily recognised, more especially as all horseflesh is indelibly stamped on inspection with the word "Pferd." The larger part of the horses imported from the United Kingdom appear to have been, not for slaughter, but for riding and driving. About 130,000 horses a year are slaughtered in Germany, and as regards Hamburg a certain number are consumed by human beings, some being used at the Zoological Gardens and private menageries. The price varies from 2d. to 6d. per pound, sausages from 4d. to 6d. per pound. The following are the statistics respecting the export of horses of small value in 1904:—Value under £5: Belgium, 2475; Holland, 2333; Germany, 38; and France, 12. Value over £5 and under £10: Belgium, 14,492; Holland, 3898; Germany, 107; and France, 28. As regards France, reports from Dunkirk, Calais, Havre, and Cherbourg show that no horses unfit for further work are imported from the United Kingdom at any ports in those consular districts.

The Sale of Ether in Ireland.

Mr. JOSEPH DEVLIN asked the Chief Secretary for Ireland whether his attention had been called to the abuses arising from the unrestricted sale of ether in the county of Derry and to the inadequacy of the restrictions on the sale of laudanum in Ireland generally; whether he was aware that the want of more stringent regulations in regard to the sale of these drugs had been responsible recently for a murder in Derry county and the cause of a suicide in the city of Belfast; and whether, in view of the facts, he would take steps to mitigate the possibility of further abuses in connexion with the sale of these drugs.—Mr. LONG answered: Both ether and laudanum are scheduled as poisons under the Act of 1870. There is some reason to believe that ether is improperly sold in certain districts and the police will endeavour to bring offenders to justice, but I have no information that the provisions of the law as regards laudanum are evaded. The case in Derry is pending for trial and I abstain from making any statement in respect to it; and in the Belfast case the coroner's jury found that death was due to an accidental overdose of chloroform.—Mr. T. W. RUSSELL asked whether the Chief Secretary was aware that in Derry ether was sold in half-pint bottles cheaper than whisky.—Mr. LONG replied: I do not know that but I will inquire.

THURSDAY, JULY 6TH.

Cancer in Ireland.

Mr. SAMUEL YOUNG asked the Chief Secretary for Ireland how many operations for cancer had taken place in workhouses in Ireland; and how many of them had terminated in death during the eight years ending March 31st, 1905.—Mr. LONG replied: The records of the Local Government Board do not afford information on this subject.

The Central Midwives Board and Irish Midwives.

Mr. CHARLES CRAIG asked the Chief Secretary for Ireland whether he was aware that the Central Midwives Board of England had refused to place upon the roll of certified midwives nurses trained at the Belfast Maternity Hospital previously to March 31st, 1905, while it had placed on this roll nurses trained under similar conditions and up to the same date at the Dublin Maternity Hospitals, at the Cork Maternity Hospital, and at the maternity hospital at Limerick; what were the grounds for the action of the Central Midwives Board in the matter; and whether he would take steps to have the nurses in question placed in the same position as other nurses of similar training.—Mr. LONG answered: The Central Midwives Board is constituted under the Midwives Act, 1902, and the rules of the Board are subject to the approval of the Privy Council for England. The Irish Government has no functions in this matter, but I have been furnished by the Lord President of the Council with a statement on the question which has been prepared by the Central Midwives Board. I gather from this statement that the purpose for which certain hospitals in Ireland were recognised, and the Belfast Maternity Hospital was not so recognised owing to its failure to apply in time, ceased to exist on April 1st, when the temporary provision (Section 2) of the Act relating to existing midwives expired.

A Question of Alleged Pollution of Water.

Mr. PIKE PEASE asked the President of the Local Government Board whether the medical officer of health had reported to the Dartford rural district council that the pumping station at Darenth, Kent, sucked the adjacent surface springs to such an extent that they ebbed and flowed according to the pumping; that this water must be liable to pollution but that the water company denied this; and when the inquiry into the liability of this source of supply to pollution asked for by 20 resident householders on March 22nd, 1904, would take place.—Mr. GERALD BALFOUR said: I understand that the medical officer of health has made a report to the effect referred to. When the undertaking of the water company passed to the Metropolitan Water

Board the Local Government Board called the attention of the Water Board to this matter. The Water Board has made a series of tests, which have just been concluded, and I am now awaiting a report as to the result.

Experiments on Animals.

Mr. FIELD asked the Home Secretary whether, in view of the fact that the total number of vivisection experiments in 1905 exceeded those of 1904 by 13,478 experiments, he would cause inquiry to be made into this matter with a view to the abolition of vivisection.—Mr. AKERS-DOUGLAS said: I must point out to the honourable Member that this increase is almost entirely accounted for by the additional inoculations, hypodermic injections, and feeding experiments that have taken place. The total increase in all other kinds of experiments was only 45. These inoculations, which numbered 30,346 out of the total of 32,562 experiments performed in the year, in no case involved a serious operation, and a very large proportion of them were performed on behalf of public or local authorities. Constant attention is given to the matter but I am not prepared to take action in the direction suggested.

The Treatment of the Sick and the Wounded during War.

Dr. MACNAMARA asked the Secretary of State for War whether he would have prepared and would lay on the table a memorandum showing how far the recommendations of the Royal Commission of 1900 on the care and the treatment of the sick and the wounded during the South African campaign had been, or would be, carried out.—Mr. ARNOLD-FORSTER answered: I shall be happy to furnish the returns asked for by the honourable Member.

MONDAY, JULY 10TH.

The Recovery of Fees.

Sir CHARLES WELBY asked the President of the Local Government Board whether he was aware that in the case of an isolation hospital having no resident medical officer it was customary for the local practitioners to attend their own patients; and whether, in the event of any such practitioner being a member of the local authority to which such hospital belonged, it was the practice of the Local Government Board to take any steps to prevent the recovery by him of the usual fees paid by the local authority in such case.—Mr. GERALD BALFOUR said: I believe that not infrequently patients in isolation hospitals are attended by their own medical men. I am not aware of any case in which the Local Government Board has taken steps to prevent the recovery of fees in such circumstances, but I think it right to draw attention to the provision in Section 12 of the Municipal Corporations Act, 1882, which disqualifies a person for being a councillor of a borough if he has directly or indirectly by himself, or his partner, any share or interest in any contract or employment with, by, or on behalf of the council. There is a similar provision in the Local Government Board Act, 1894, as regards members of urban or rural district councils.

Conscientious Objection to Vaccination in Scotland.

Sir JOHN LENG asked the Lord Advocate whether the prosecution in Dundee of 21 parents who conscientiously objected to the vaccination of their children had been ordered by the Local Government Board for Scotland; whether such prosecutions took place in England; and why so many prosecutions of this kind were being conducted in one Scottish city.—The LORD ADVOCATE said: The Local Government Board does not directly order the prosecution of vaccination defaulters but is required by the Vaccination Act to see that its provisions are duly carried out. The Board communicates when necessary with parish councils calling attention to the provisions of the Act and among the parish councils lately so communicated with the parish council of Dundee was written to in the early part of the year. In regard to the latter part of the honourable Member's question, I have no information in regard to English prosecutions. The number of prosecutions, of course, depends on the number of defaulters.

BOOKS, ETC., RECEIVED.

ABERDEEN UNIVERSITY PRESS, LIMITED.

The Royal Medical and Chirurgical Society of London. Centenary, 1805–1905. Written at the Request of the President and Council. By Norman Moore, M.D., F.R.C.P., Honorary Librarian, and Stephen Paget, F.R.C.S., Honorary Secretary. Price not stated.

ADLARD AND SON, Bartholomew-close, E.C.

Observations on the Filarial Embryos found in the General Circulation of the Equidæ and Bovidæ, and their Probable Pathological Significance. By Alfred Lingard, M.B., M.S., D.P.H., M.R.C.S. Eng., Fellow of the Bombay University, Imperial Bacteriologist to the Government of India. Fasciculus I.—Bursati. Price 2s. 6d. net.

AMERICAN PEDIATRIC SOCIETY (Secretary, Dr. SAMUEL S. ADAMS, 1, Dupont-circle, Washington).

Transactions of the American Pediatric Society. Sixteenth Session. Held at Detroit, Mich., May 30th, 31st, and June 1st, 1904. Edited by Linnæus Edford La Fétra, M.D. Vol. XVI. Price not stated.

APPLETON, D., AND COMPANY, New York and London.

A Text-book of Obstetrics. By Adam H. Wright, Professor of Obstetrics, University of Toronto, Obstetrician and Gynecologist to the General Hospital, Toronto, Canada. Price 18s. net.

Modern Clinical Medicine. Infectious Diseases. Edited by J. C. Wilson, A.M., M.D., Professor of Medicine in the Jefferson Medical College. An authorised translation from "Die Deutsche Klinik," under the general editorial supervision of Julius L. Salinger, M.D. Price 25s. net.

BAILLIÈRE, J. B., ET FILS, 19, Rue Hautefeuille, Paris.

Les Actualités Médicales. Technique de l'Exploration du Tube Digestif. Par le Dr. René Gaultier, Ancien Interne Lauréat des Hôpitaux de Paris. Price Fr.1.50.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent Garden, W.C.

Carcinoma of the Rectum: Its Diagnosis and Treatment. By F. Swinford Edwards, F.R.C.S., Senior Surgeon to St. Mark's Hospital for Diseases of the Rectum and to St. Peter's Hospital for Urinary Disease. Price 2s. 6d. net.

BARTH, JOHANN AMBROSIUS, Leipzig.

Die Lungenschwindsucht. Auf Grundlage Klinischer und Experimenteller Hämatologischer Untersuchungen. Mit besonderer Berücksichtigung der sich in diagnostischer, prognostischer und therapeutischer Hinsicht (speziell mit Bezug auf die Tuberkulinbehandlung) ergebenden Gesichtspunkte. Von Privatdozent Dr. Joseph Arneth, I. Assistenzarzt der Mediz. Klinik am Königl. Juliusspitale zu Würzburg. (Vorstand: Geheimrat Professor Dr. von Leube.) Price M.4.

BEMROSE AND SONS, LIMITED, 4, Snow-hill, E.C., and Derby.

Garden Cities in Theory and Practice: Being an Amplification of a Paper on the Potentialities of Applied Science in a Garden City read before Section F of the British Association. By A. R. Sennett, M.I.C.E., M.I.M.E., M.I.E.E., M.R.I., Member of the Advisory Committee, Roads Improvement Association, Member of the Research Committee on Road Traction, &c. Two volumes. Price 21s. net.

DEUTICKE, FRANZ, Leipzig und Wien.

Die Blennorrhöe der Sexualorgane und ihre Complicationen. Nach dem neuesten wissenschaftlichen Standpunkte und zahlreichen eigenen Studien und Untersuchungen dargestellt von Dr. Ernest Finger, K.K.O.Ö. Professor der Dermatologie und Syphilis, Vorstand der Universitätsklinik für Syphilidologie und Dermatologie in Wien. Sechste, wesentlich vermehrte und verbesserte Auflage. Price M.12.

FISCHER, GUSTAV, Jena.

Entwurf einer Relationspathologie. Von G. Ricker. Price M.1.20.
Antitoxische Prozesse. Von Dr. C. Levaditi. Price M.2.80.

GIORNALE MEDICO DEL REGIO ESERCITO, Roma.

Antropometria Militare. Risultati ottenuti dalla Spoglio dei Fogli Sanitarii dei Militari delle Classi 1859–63. Eseguito dall' Ispettorato di Sanità Militare per Ordine del Ministero della Guerra. Incaricato della Direzione dei Lavori, Dr. Ridolfo Livi, Maggiore Medico. Parte II. Dati Demografici e Biologici. Price L.6. (Price of the complete work, 2 volumes, L.24.)

GRIFFIN, CHARLES, AND COMPANY, LIMITED, Exeter-street, Strand, W.C.

An Introduction to Midwifery: A Handbook for Medical Students and Midwives. By Archibald Donald, M.A., M.D., C.M. Edin., M.R.C.P. Lond., Gynecological Surgeon to the Manchester Royal Infirmary. Sixth edition. Price 5s.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.

Bakteriologische Untersuchungen über Hände-Desinfektion und ihre Endergebnisse für die Praxis. Von Dr. med. O. Sarwey, a.o. Professor in Tübingen. Price M.2.40.
Welt und Gehirn. Ein Essay. Von Eduard Hitzig. Price M.1.20.
Ueber Beziehungen der Pharmakodynamischen Therapie zu anderen Wissenschaften im 19. Jahrhundert. Vortrag, gehalten in der Sektion für Therapie und Pharmakologie auf dem International Congress of Arts and Science zu St. Louis, 24. September, 1904. Von Oscar Liebreich, Dr. med. und Professor der Pharmakologie an der Universität Berlin. Price M.1.

ILIFFE AND SONS, LIMITED, 20, Tudor-street, E.C.

The Rational Treatment of Running Ears. By F. Faulder White, F.R.C.S. Eng., Honorary Surgeon to the Coventry Hospital. First edition. Price 5s.

KARGER, S., Karlstrasse, 15, Berlin, N.W.

Die Krankheiten des Verdauung-kanals (Oesophagus, Magen, Darm). Ein Leitfaden für praktische Aerzte. Von Dr. Paul Cohnheim, Spezialarzt für Magen- und Darmkrankheiten in Berlin. Price M.5.60.
Die Palpablen Gebilde des normalen menschlichen Körpers und deren Methodische Palpation. Nach eigenen Untersuchungen an der Leiche und am Lebenden. Von Dr. Toby Cohn, Nervenarzt in Berlin. 1. Teil: Obere Extremität. Price M.5.60.
Allgemeine Pathologisch anatomische Diagnostik. Von Dr. R. Oestreich, Privatdozenten an der Universität, Prosektor des Königin Augusta-Hospitals zu Berlin. Price M.6
Gynäkologische Diagnostik. In zwanglosen Vorträgen für Studierende und Aerzte. Von Dr. Max Henkel, Oberarzt an der kgl. Universitäts Frauenklinik und Privat-Docent an der Universität Berlin. Price M.6.40.

KIMPTON, HENRY, 13, Furnival-street, Holborn, E.C.

A Text-book of the Practice of Medicine. For Students and Practitioners. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics in the Jefferson Medical College of Philadelphia, Physician to the Jefferson Medical College Hospital. Price 21s. net.
Essentials of the Diseases of the Ear. Arranged in the Form of Questions and Answers. Prepared especially for Students of Medicine and Post-Graduate Students. By E. B. Gleason, S.B., M.D., Clinical Professor of Otology, Medico-Chirurgical College, Philadelphia. Third edition thoroughly revised. Price 4s. net.
Indigestion, Clearly Explained, Treated, and Dieted. (With Special Remarks on Corpulency, Gout, and Constipation.) By Thomas Dutton, M.D. Univ. Durh. Sixth edition, enlarged and revised. Price 1s. 6d. net.

LEWIS, H. K., 136, Gower-street, W.C.

The Child's Diet. By J. Sadler Curgenven, M.R.C.S., L.R.C.P. Price 1s. 6d. net.

METHUEN AND CO., 36, Essex-street, Strand, W.C.

Elementary Experimental Chemistry. By A. E. Dunstan, B.Sc. Lond., F.C.S., Head of the Chemical Department, East Ham Technical College. Price 2s.

NEW SYDENHAM SOCIETY, London (Agent, H. K. LEWIS, 136, Gower-street, W.C.).

An Atlas of Illustrations of Clinical Medicine, Surgery, and Pathology. Compiled for the New Sydenham Society (A continuation of the "Atlas of Pathology"). Fasciculus XXII. Being XIV. of the Clinical Atlas. Leucoderma, Myxœdema, Miscellaneous, and Eruptions Caused by Drugs. Price to non-members, half a guinea.

OFFICE OF THE SUPERINTENDENT OF GOVERNMENT PRINTING, INDIA, 8, Hastings-street, Calcutta.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. New Series. No. 16.—The Specificity of Antivenomous Sera, with Special Reference to a Serum prepared with the Venom of Daboia Russelli. By Captain George Lamb, M.D., I.M.S. Price 6 annas, or 7d.

SIEGLE, A., 2, Langham-place, W.

Electrical Methods in the Treatment of Affections of the Stomach and Intestines: A Practical Manual for Students and Practitioners. By George Herschell, M.D. Lond., Fellow of the Royal Medico-Chirurgical Society, Member of the British Electro-therapeutic Society, Senior Physician to the Queen's Jubilee Hospital. Price 3s. 6d. net.

STEINHEIL, G., 2, Rue Casimir-Delavigne, Paris.

Bulletins et Mémoires de la Société Anatomique de Paris. Publiés par les soins de M. Xavier Bender, Secrétaire Général, et MM. Crouzon et Laignel-Lavastine, Secrétaires. LXXX^e Année. Sixième Série, Tome VII. No. 3. Mars, 1905. Price not stated.

UNIVERSITY OF CHICAGO PRESS, Chicago.

A Laboratory Guide in Bacteriology. For the Use of Students, Teachers, and Practitioners. By Paul G. Heinemann, Sc.B., Fellow in Bacteriology, the University of Chicago. Price $1.50.

VIGOT FRÈRES, 23, Place de l'École de Médecine, Paris.

Les Epidémies et les Maladies Contagieuses au XX^e Siècle. Conférences données à l'Institut des hautes études de l'Université nouvelle de Bruxelles. Par le Dr. Jules Félix. Price Fr.3.50.

WENTWORTH PUBLISHING COMPANY, Clun House, Surrey-street, W.C.

The Seaside and Inland A B C Holiday Guide to all Health and Pleasure Resorts and Places of Interest in the United Kingdom. Illustrated with photo views. Price 1s. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ACKERY, E. FAULKNOR, L.R.C.P. Lond., M.R.C.S. Eng., L.D.S., has been appointed Dental Surgeon to the North-West London Hospital.

BALL, JOHN BRAMLEY, L.D.S. R.C.S. Eng., has been appointed Dental House Surgeon to Guy's Hospital.

BURNET, R. W., M.D. Aberd., F.R.C.P. Lond., has been appointed Consulting Physician to the Great Northern Central Hospital.

CLARK, ALFRED, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Public Vaccinator for Ashburton, New Zealand.

COLLINS, J. C., M.B., Ch.B. Dub., has been appointed Medical Superintendent of the Northern Wairoa Hospital at Aratapu, New Zealand.

DOUGLAS, A., M.B., Ch.M. Edin., has been appointed Port Health Officer at Oamaru, New Zealand.

FORTY, ARTHUR ALAN, L.D.S. R.C.S. Eng., has been appointed Dental House Surgeon to Guy's Hospital.

HALL, GEORGE JOSEPH ALPHONSUS, L.R.C.P. & S. Irel., has been appointed Public Vaccinator for Birmingham, New Zealand.

HEWELEY, FRANK, M.B. Durh., F.R.C.S. Eng., has been appointed Honorary Physician to the St. Pancras and Northern Dispensary.

LINDSAY, HERBERT STOTT, M.R.C.S., L.R.C.P. Lond., has been appointed a Health Officer for the Port of Whitianga and Public Vaccinator for Mercury Bay, New Zealand.

SHAND, WALTER MORAY, M.B., Ch.B. N.Z., M.R.C.S. Eng., has been appointed Public Vaccinator for Wellington, New Zealand.

STMES-THOMPSON, H. E., M.D., M.R.C.P. Lond., has been appointed Physician with charge of out-patients to the Great Northern Central Hospital.

TRENFIELD, GEORGE HENRY, L.R.C.P. Lond., M.R.C.S., has been appointed Surgeon to the Midland Railway at Bristol.

WATERHOUSE, RUPERT, M.D. Lond., M.R.C.S. Eng., has been appointed Pathologist and Curator of the Museum at the Royal United Hospital, Bath.

WYER, OTHO F., M.D. Glasg., has been appointed Consulting Physician to the Warneford General Hospital, Leamington.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ARMY MEDICAL SERVICE.—40 Commissions in the Royal Army Medical Corps.

BIRMINGHAM, UNIVERSITY OF.—Walter Myers Travelling Studentship. Value £150.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Clinical Assistant.

DORCHESTER, DORSET COUNTY HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

GROCERS' COMPANY.—Two Scholarships for Original Research in Sanitary Science. Value £300 a year.

HAMMERSMITH INFIRMARY AND WORKHOUSE, Ducane-road, Wormwood Scrubs, W.—Medical Superintendent and Medical Officer. Salary £300 per annum, with house, coals, light, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident Medical Officer. Salary £200 per annum, with board and residence.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, unmarried. Also Assistant Casualty Medical Officer, unmarried. Both appointments for six months. Salaries £20, with board and residence.

HOSPITAL FOR WOMEN, Soho-square, W.—Registrar. Honorarium 25 guineas.

KENT AND CANTERBURY HOSPITAL.—Honorary Physician.

LEICESTER, BOROUGH OF, EDUCATION COMMITTEE.—Medical Officer. Remuneration £400 per annum, rising to £450.

LISCARD, WALLASEY DISPENSARY AND VICTORIA CENTRAL HOSPITAL.—House Surgeon, unmarried. Salary £100, with apartments, board, and service.

LIVERPOOL, EYE AND EAR INFIRMARY.—House Surgeon. Salary £80 per annum, with residence and maintenance.

MANCHESTER, CHORLTON UNION WORKHOUSE HOSPITAL, Withington.—Junior Resident Medical Officer. Salary £100 per annum, with rations, apartments, and attendance.

MANCHESTER NORTHERN (LATE CLINICAL) HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road.—House Surgeon. Salary £80 per annum, with apartments and board.

MANCHESTER, VICTORIA UNIVERSITY.—Junior Demonstrator in Physiology. Salary £100, rising to £150 per annum.

MIDDLESEX HOSPITAL, W.—Emden Research Scholarship for Cancer Investigation, tenable for one year. Value £100.

ORKNEY, PAPA WESTRAY-PARISH COUNCIL.—Lady Medical Officer and Public Vaccinator. Salary £75, with fees, house, and garden.

READING, ROYAL BERKSHIRE HOSPITAL.—Secretary and House Governor. Salary £200 per annum, with residence.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—Out-patient Clinical Assistants.

SHEFFIELD, CHILDREN'S HOSPITAL (OUT-PATIENT DEPARTMENT).—House Surgeon. Salary £70 per annum, with board, lodging, and washing.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon. Salary £60 per annum, with rooms, board, and washing.

STRAITS SETTLEMENT, MUNICIPALITY OF THE TOWN OF SINGAPORE.—Assistant Municipal Health Officer, unmarried. Salary £400 per annum.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION.—Senior Resident Medical Officer, unmarried. Salary £200 per annum, with board and lodging.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician for six months. Honorarium of £25, with board and lodging.

WAKEFIELD, WEST RIDING ASYLUM.—Locum Tenens for six weeks. Terms £3 3s. per week, residence, board, &c.

WESTON-SUPER-MARE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Stalybridge, in the county of Cheshire; and at Bracknell, in the county of Berks.

Births, Marriages, and Deaths.

BIRTHS.

CULMER.—On June 9th, at Nassau, Bahamas, the wife of J. J. Culmer, M.R.C.S., L.R.C.P., of a son.

EASTERBROOK.—On July 6th, at Arnprior, Gorebridge, Midlothian, the wife of Alex. M. Easterbrook, M.B., C.M., of a son.

FINCH.—On July 9th, at Purston, Pontefract, the wife of W. Stanley Finch, M.R.C.S., of a daughter.

HOPE.—On July 4th, at Grove-park, Liverpool, the wife of E. W. Hope, M.D., of a daughter.

MARRIAGES

BRADLEY—CADBURY.—On July 6th, at the Friends' Meeting House, Birmingham, Neville Bradley, M.B., to Margaret, fourth daughter of the late Richard Cadbury, J.P.

WARREN—BUCHANAN-DUNLOP.—On July 6th, at Christ Church, Reading, Alfred Castle Warren, M.R.C.S., L.R.C.P., of 13, Campden Hill-square, Kensington, to Sabina (Ina), eldest daughter of Lieutenant-Colonel H. D. Buchanan-Dunlop, R.A. (retired), of Whitley Rise, Reading.

DEATH.

CAMERON.—On July 5th, at Edinburgh, Robert W. D. Macmartin Cameron, M.D., D.Sc., late of Newton Stewart, N.B.

N.B.—A fee of £5 is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

POISONING BY FOOD AT ELY (LLANDAFF).

Dr. R. Prichard, medical officer of health of Llandaff and Dinas Powis rural district council, refers in his annual report to a mysterious case of poisoning. It appears that a number of persons partook of "faggots" and peas in the village of Ely, many of whom subsequently suffered acute, griping, abdominal pains, followed by vomiting and diarrhœa, and afterwards more or less prostration. The symptoms set in from three to ten hours after eating the food, except in the case of a girl aged 12 years, who had only two spoonfuls of peas and who had slight griping pains about 15 hours later. The food was purchased at a small shop on the Cowbridge-road. Some persons ate at the counter in the shop, others in their own homes. Ten persons, including some young children, ate "faggots" only; none of them suffered any ill effects. Ten others ate peas alone, while 17 others again partook of both "faggots" and peas; all of them suffered as above stated. The peas evidently contained the poisonous matter, as 27 individuals who took the peas either alone, with gravy, or with "faggots" were seriously indisposed after a few hours, while no one was affected who only ate "faggots." All recovered in the course of two or three days. The symptoms from which the patients suffered led Dr. Prichard to suspect possibly sulphate of copper, which is sometimes used in the greening of peas, but there was no trace of any metallic poison found in the samples of the "faggots," peas (cooked and uncooked), soda, &c., which were taken to, and analysed at, the Cardiff and County Public Health Laboratory.

THE COST OF LIVING IN WEST AFRICA.

To the Editors of THE LANCET.

SIRS,—In answer to Mr. St. George Queely's queries in regard to the cost of living in West Africa the following information in regard to the Gold Coast may be of use. I have not seen West Africa since 1901, but the modes of living will not have materially changed since then. As regards the distance of the goldfields from the coast this naturally varies with their position. I was ten days' march up country, but some companies were located only a few miles away. Practically it amounts to this. Measure the distance of the camp from the Sekondi-Kumasi Railway. Allow one day for the railway journey and 15 miles a day for the hammock journey.

Provisions are all tinned. The native sheep and goats are too awful for words. Nowadays everything—bacon, flour, butter, even cigars—can be obtained tinned, but naturally the cost is somewhat great. £3 10*s.* is very moderate for a week's rations which should be ordered directly from England for choice. This does not include drinks. As to the kind of food requisite, I learnt by experience one or two things that perhaps you will allow me to mention here. 1. Get as large a variety as possible and put in plenty of tinned fruits. I never enjoyed tinned peaches till I swallowed a whole tin of them in the forest of Kujumakrum. 2. Do not forget a metal sparklet bottle and plenty of sparklet bullets. Limes are fairly plentiful in West Africa and a fizzy lime drink is a great boon out there. 3. Take a Berkefeld filter and use it always. The company I was on provided us with a carbon drip filter! We knocked the "filtering" apparatus out of it and used it to store boiled water. If your correspondent cares to communicate with me I should be delighted to give him any information that lies in my power.

I am, Sirs, yours faithfully,

July 8th, 1905. WEST AFRICAN.

MOTOR-CARS FOR MEDICAL MEN.

To the Editors of THE LANCET.

SIRS,—Will you be good enough to insert this in your paper? I am in want of a cheap motor-car, four-seated, so as to be able to combine pleasure with business and am told that the "Leader," at 225 guineas, is a good reliable car, and not unnecessarily complicated (as I shall not keep a chauffeur). Will any medical man having experience of this car be good enough to give me his opinion, especially as to hill-climbing, silence, and petrol consumption? I am, Sirs, yours faithfully,

July 11th, 1905. PLUG.

AN OLD MEDICAL ACCOUNT.

A CORRESPONDENT has sent us an old medical account which presents several points of interest. It gives details of all medicines supplied and the chief point which strikes the modern medical man is the enormous quantity of medicine which the patient received; whether he took it all is another matter. The account commences on Nov. 11th, 1825, and closes on Dec. 31st, 1826. No charge is openly made for attendance but the bill may well be said to afford an illustration of the gibe that an apothecary was a man who poured drugs of which he knew little into stomachs of which he knew less. The patient was apparently in fairly good health during the early months of the year but on March 1st he led off with a mixture 2*s.* 6*d.* and powders 2*s.* These lasted him about two days and he continued thus every two days until March 14th, when more active measures were undertaken. From this date to the end of the year the unhappy patient received every day a draught or draughts and pill, with the occasional addition of a blister. The whole account, including dressings, &c., came to £105 12*s.*

A CASE OF ZONA OF THE FOREARM AND HAND.

To the Editors of THE LANCET.

SIRS,—With reference to the case published in THE LANCET of July 8th by Mr. R. E. P. Squibbs, I saw a patient last week, a man, aged 40 years, who had several small clusters of vesicles situated on the posterior surface of the upper arm and forearm and also on the dorsal surface of the first and second fingers, following the course of the musculo-spiral and radial nerves. He complained of neuralgic pains which were most severe at night.

I am, Sirs, yours faithfully,

LAWRENCE F. HEMMANS, M.B., B.S. Durh., F.R.C.S. Edin.

Lewisham, S.E., July 10th, 1905.

THE CULT OF THE ROSE.

WE have received a copy of the special Rose Number of the *Gardener's Magazine*, published by Messrs. W. H. Collingridge of Aldersgate-street, London, E.C. In addition to a coloured plate of the new single rose Maharajah there are several illustrations of beautiful roses and rose gardens and the letterpress will be found both interesting and instructive to all who admire England's emblem.

THE HOLMAN LIBRARY AT EPSOM COLLEGE.

THE following subscriptions have been received since the list of the Holman Testimonial Fund was closed: Mr. Hugh B. Vardon, £2 2*s.* Miss Topham, £1 1*s.* The Holman Library at Epsom College, to building which the fund has been devoted, is now completed and will be opened on Founder's Day, July 29th. Subscribers wishing to be present are requested to apply to the Headmaster, Epsom College, for tickets.

C. J. H. is thanked for his communication. The newspaper paragraph in question had already been brought to our attention.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (17th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.).

TUESDAY (18th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.).

WEDNESDAY (19th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.) Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.).

THURSDAY (20th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.).

FRIDAY (21st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London

Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.).

SATURDAY (22nd).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

WEDNESDAY (19th).—SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN (11, Chandos-street, Cavendish-square, W.).—5.30 P.M. Annual General Meeting.—Election of Office Bearers and Report of the Council.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (17th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. R. J. Reece: Immunity.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. S. E. Dore: Clinique. (Skin.) 5.15 P.M. Mr. C. Nourse: Atrophic Rhinitis.

TUESDAY (18th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Bidwell: Plaster-of-Paris Splints.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Taylor: Clinique. (Medical.) 5.15 P.M. Dr. H. Campbell: Observations on Diet.

WEDNESDAY (19th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Dunn: Diseases of the Conjunctiva and their Treatment.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Pardoe: Clinique. (Surgical.) 5.15 P.M. Mr. A. Lane: Abdominal Surgery.

THURSDAY (20th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Baldwin: Practical Surgery.

HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Lecture:—Mr. Smart: The X Rays in the Diagnosis of Renal Calculus.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Fitzroy-square, W.).—5 P.M. Lecture:—Dr. H. Scharlieb: Some Post-anæsthetic Complications. (Post-Graduate Course.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Mr. W. E. Miles: Neoplasms of the Rectum and Anus.

FRIDAY (21st).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Bidwell: Plaster-of-Paris Splints.

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It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1905, which was completed with the issue of June 24th, and the Title-page to the Volume, were given in THE LANCET of July 1st.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1905 are now ready. Bound in cloth, gilt lettered, price 18s., carriage extra.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 13th, 1905.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
July 7	30·15	N.E.	...	115	77	55	55	63	Fine
,, 8	30·12	N.E.	...	126	84	61	64	69	Fine
,, 9	30·07	S.E.	0·55	127	82	60	64	71	Cloudy
,, 10	30·03	W.	...	123	75	60	63	69	Fine
,, 11	30·03	W.	...	124	80	64	65	70	Cloudy
,, 12	30·06	W.	...	127	81	65	64	68	Cloudy
,, 13	30·12	W.	...	118	75	63	66	70	Cloudy

During the week marked copies of the following newspapers have been received:—*South Wales Daily Echo, Cambridge Chronicle, Eastern Daily Press, Western Mail (Cardiff), Bolton Daily Chronicle, Westminster Gazette, Irish Times, Spectator, Essex Observer, Literary Digest (New York), Scientific American, Morning Post, Morning Leader, Daily Chronicle, Yorkshire Daily Observer, Liverpool Courier, Gardeners' Chronicle, Southern Press (Scotland), Globe, Daily News, &c.*

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U.—*University of Chicago Press.*

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Y.—Professor A. H. Young, Manchester.

Letters, each with enclosure, are also acknowledged from—

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